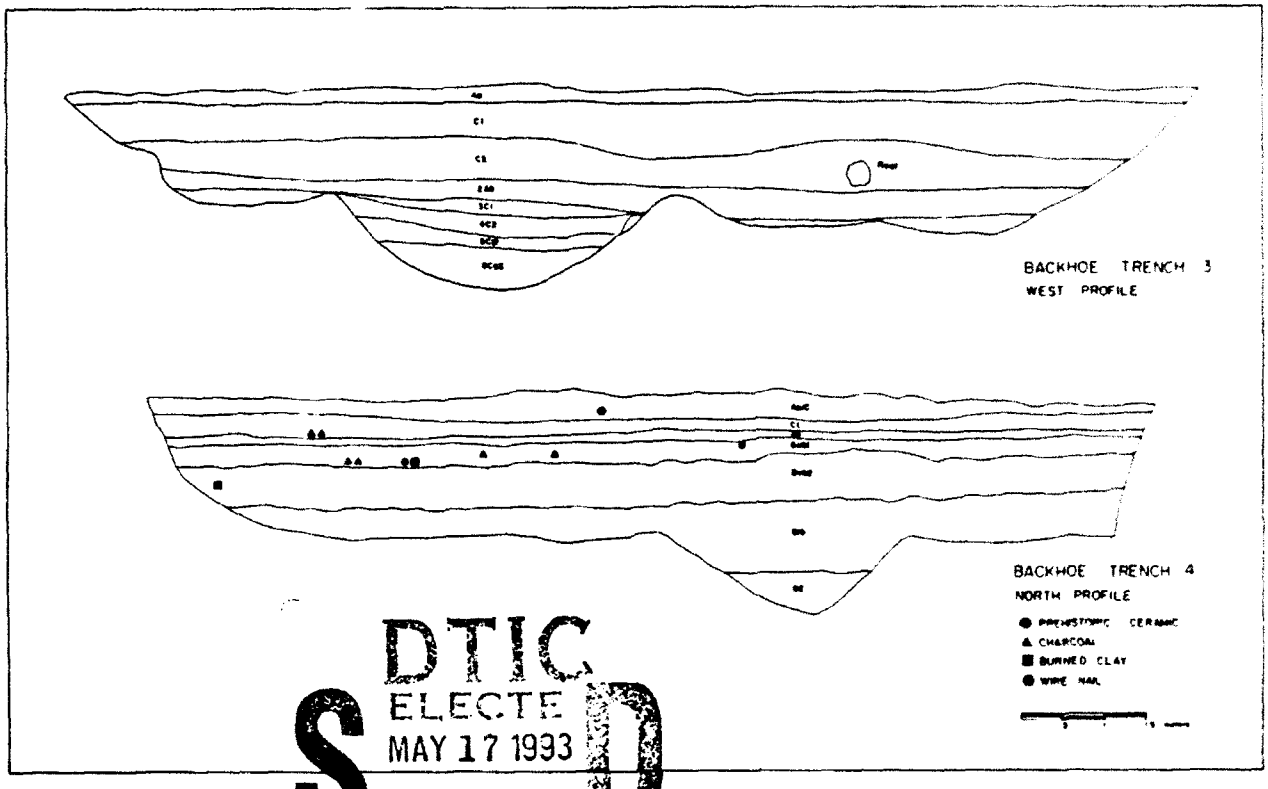

ARCHAEOLOGICAL INVESTIGATIONS IN THE HALLS-FOWLKES REGION SOUTH FORK OF THE FORKED DEER RIVER, WEST TENNESSEE

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A cultural resources investigation was conducted. The investigations included an architectural survey, a geomorphic study , and archaeological survey and testing. Five archaeological sites and four architectural sites were recorded. The report focuses on the geomorphic and archaeological investigations. The goemorphic study determined that buried cultural deposits are present in the study area. The archaeological work provided information on the cultural history of the region, variables affecting the location of prehistoric settlements, site densities, intra site structure and raw material utilization.

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ARCHAEOLOGICAL INVESTIGATIONS IN THE HALLS-FOWLKES REGION

SOUTH FORK OF THE FORKED DEER RIVER, WEST TENNESSEE

by

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Nashville, Tennessee

1985

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Abstract

Cultural resource investigations were conducted in the Halls-Fowlkes region of the South Fork of the Forked Deer River in West Tennessee. The investigations included an architectural survey, a geomorphic study, and archaeological survey and testing. Five archaeological sites and four architectural sites were recorded. The report focuses on the geomorphic and archaeological investigations. The geomorphic study determined that buried cultural deposits are present in the study area. The archaeological work provided information on the cultural history of the region, variables affecting the location of prehistoric settlements, site densities, intra site structure and raw material utilization.

ACKNOWLEDGMENTS

Funding for the project was provided by the Memphis District, Corps of Engineers. Douglas Prescott of the Memphis District, Corps of Engineers served as the contracting officer's designated representative. Mr. Prescott handled administrative aspects of the project, including preparation of the scopes of work and contract amendments.

Robert L. Jolley was the Principal Investigator and the Field Director. Jerald Ledbetter and Guy Weaver served as assistant supervisors and Mary Beth Dowd, Joe Taylor, Charlotte Watrin and Beth Williams served as field technicians. The architectural historian was Phil Thomason and the project geomorphologist was Michael L. Barnhardt. The figures were drawn by Charlotte Watrin and Robert L. Jolley.

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I. INTRODUCTION

The project area is located in Crockett, Dyer and Lauderdale counties, Tennessee (Figure 1). The project area encompasses 6.59 km^2 of which 6.55 km^2 are situated in the bottomlands (i.e., floodplain and terrace remnants) and .04 km^2 are situated in the uplands. The Memphis District, Corps of Engineers plans to rechannelize a 15.2 mile section of the South Fork of the Forked Deer River (Figures 2 and 3) as part of its West Tennessee Tributaries project. Sections of this river were previously channelized by private concerns ca. 1915-1920 and the downstream section was channelized by the Memphis District, Corps of Engineers in the early 1970s. These previous channelizations have significantly altered the original course of the river.

The project area is divided into three contiguous sections (Figure 4). The first 4.4 mile section (Fowlkes Item, Parcel 1) starts at the mouth of the South Fork of the Forked Deer River. The second section is 4.6 miles long (Fowlkes Item, Parcel 2) and the third section is 6.2 miles long (Halls Item). The first section has a 300 foot right-of-way and the other two sections have a 500 foot right-of-way. The right-of-way extends on both sides of the existing channel.

Cultural resource investigations were conducted in the project area during the period May 1984 to June 1985. The fieldwork was conducted in three separate "phases". These phases were the result of contracting procedures (i.e., the addition of contract amendments).

The first phase of fieldwork was conducted in May 1984. The work included a pedestrian survey of the Fowlkes Item (Parcel 2) and the Halls Item. Controlled surface collections and site testing were conducted at two archaeological sites (40DY54 and 40CT10) located within the 500 foot right-of-way. Additional work included an architectural survey and a geomorphic study. The geomorphic study was conducted to determine the probable presence of buried cultural remains in the project area. This study indicated that there was a high probability for buried cultural remains.

A second phase of fieldwork was conducted in August 1984. The scope of work included: 1) a buried sites reconnaissance, 2) a riverbank survey and 3) additional investigations at 40CT10. A detailed riverbank survey was conducted and eight backhoe test units were excavated. The investigations were conducted to locate buried cultural remains and to obtain geomorphic information that could be correlated with the archaeological data. Two buried archaeological sites (40DY55 and 40DY56) were discovered as a result of these investigations.

The third phase of fieldwork was conducted in June 1985. These investigations included a survey of the 4.4 mile long Fowlkes Item (Parcel 1) and additional investigations at the two buried sites (40DY55 and 40DY56) discovered during the riverbank survey. The 4.4 mile survey area had been

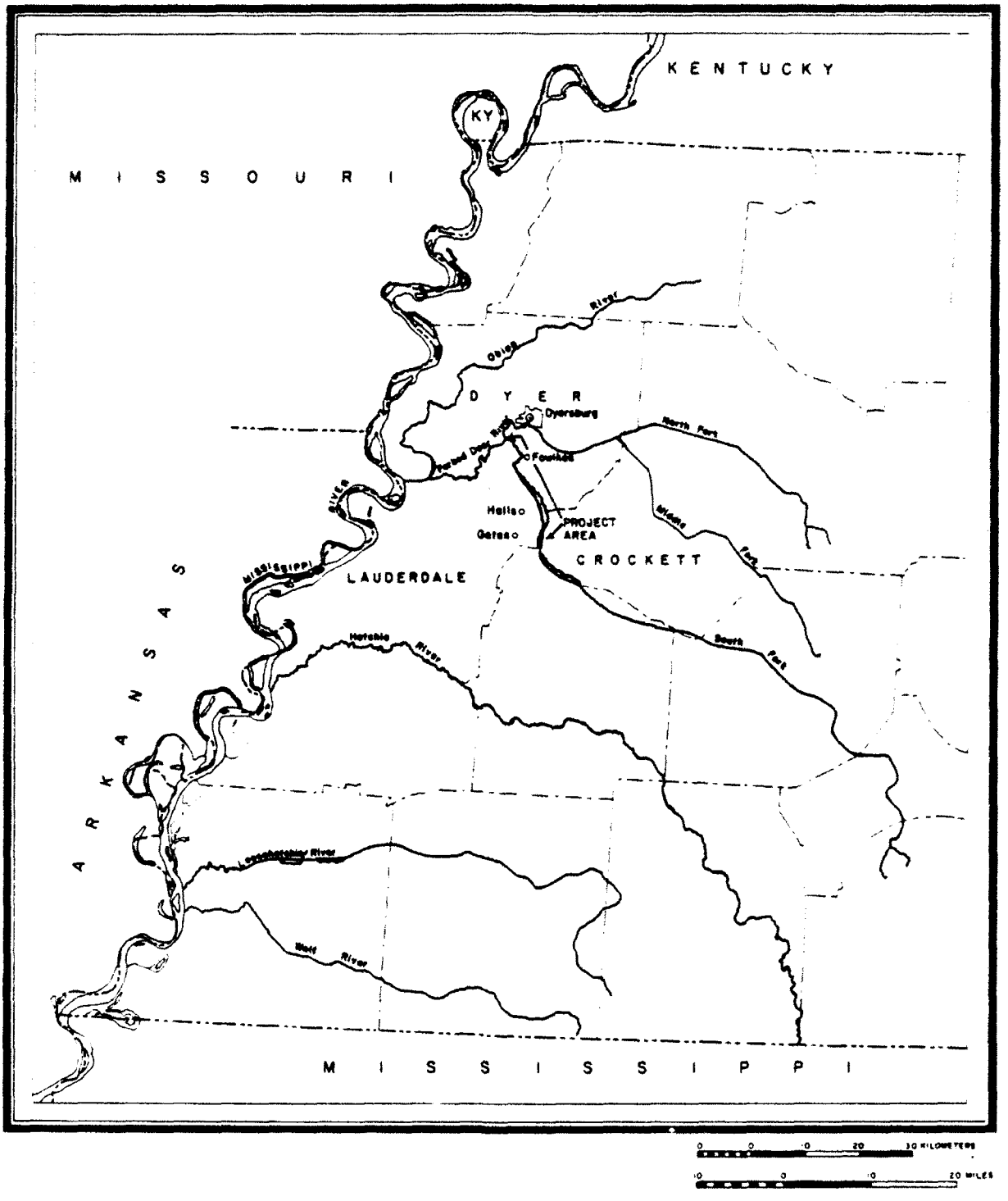

Figure 1. Location of project area.

Figure 2. View of the South Fork of the Forked Deer River.

Figure 3. View of the South Fork of the Forked Deer River.

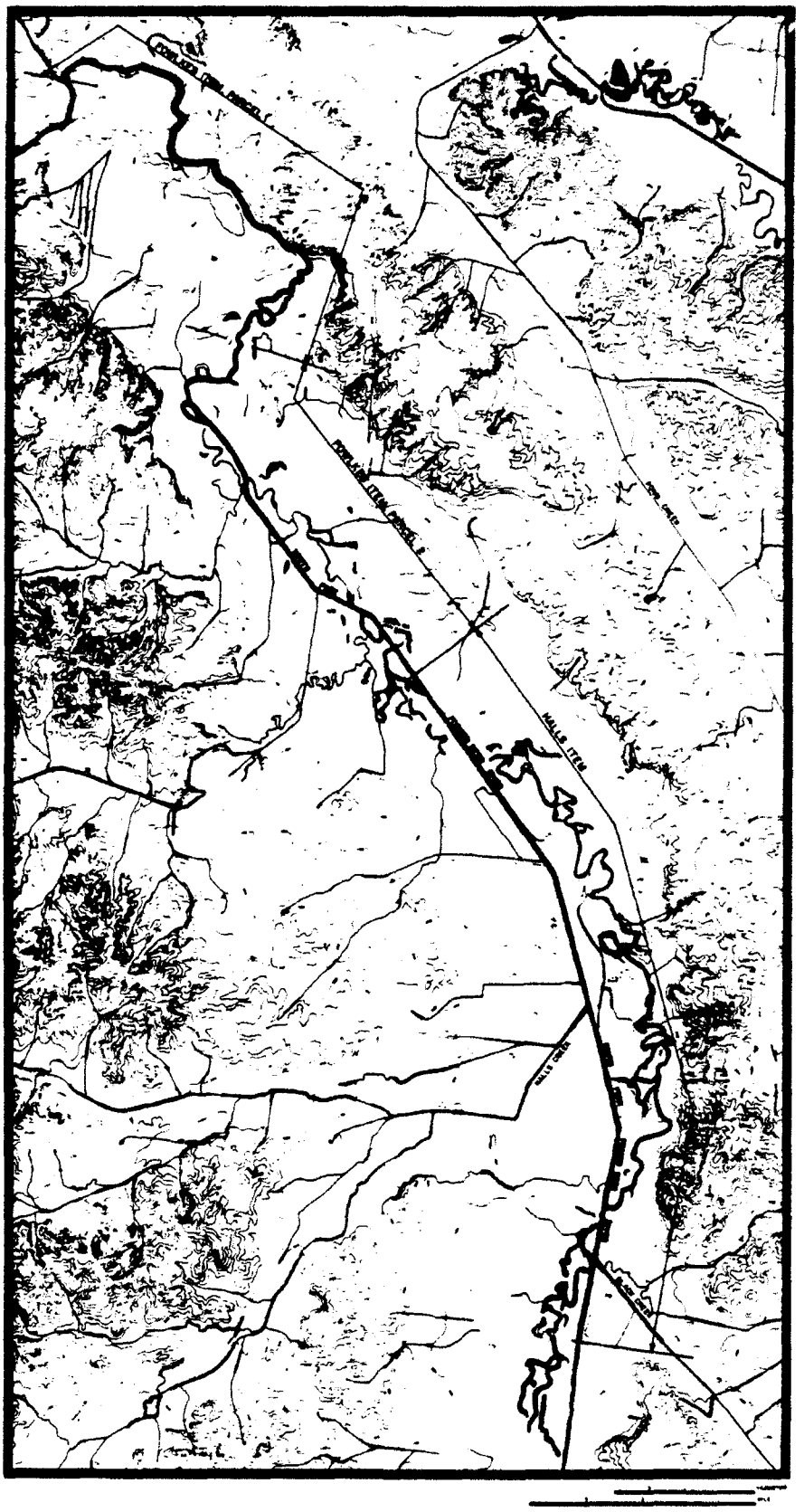

Figure 4. Location of survey areas.

previously channelized by the Memphis District, Corps of Engineers in the early 1970s; however, plans were made to clean out this channel in conjunction with the upstream rechannelization project. One site 40DY57, was recorded within the 300 foot right-of-way.

The following sections of the report detail the background data, the research design, the typologies, the methods and the results of the investigations. The artifacts recovered from the investigations are curated at the Pinson Mounds State Park, Pinson, Tennessee.

II. ENVIRONMENT

The project area is situated within the Gulf Coastal Plain physiographic province (Fenneman 1938). The Gulf Coastal Plain, an area of low relief with rolling hills (Braun 1950:157), has been subdivided into two units: the West Tennessee Uplands and the West Tennessee Plain (Miller 1974:7). The project area is located in the West Tennessee Plain, a zone of flat terrain that slopes toward the Mississippi River (Miller 1974:7). The study area was covered by the sea during the Late Cretaceous period and part of the Tertiary period (Miller 1974:7). Fluvial sands, silts and gravels were deposited in the area during the Quaternary and Tertiary periods.

The study area is a part of the Mississippi embayment section of the Western Mesophytic Forest Region (Braun 1950:157). The Mississippi Embayment section displays a mosaic of prairie, oak-hickory forest, swamp forest and mixed mesophytic communities. The oak-hickory forest is present in the uplands and swamp forest is present in the alluvial valleys (Braun 1950:158). Prairie areas occur in the Mississippi Embayment section and mixed mesophytic communities are present in the loess hills to the immediate west.

The project area is a part of the mixed mesic or tulip-oak subdivision of the Temperate Deciduous Forest Biome (Shelford 1963:18). This forest biome is a combination of Braun's Mixed Mesophytic and Western Mesophytic forests. White-tailed deer and turkey are abundant and constitute the most important animal species in the biome. The deer population varies, sometimes cyclically, between 100 and 840 individuals per ten square miles and the large flocks of turkeys reported at the time of white contact suggest a population of at least 200 individuals per ten square miles (Shelford 1963:28).

A summary of recent paleobotanical studies suggest vegetational changes in western Tennessee during the Late Wisconsin glacial period (Delcourt and Delcourt 1978:16-19). A mosaic of oak-pine forest and prairies was present from about 26,000 to 20,000 B.C. A cooling trend caused the forest to be replaced by spruce and northern pines. A warming trend starting about 15,000 B.C. led to an increased number of deciduous species, including oaks, hickories, walnut and birch. The warming trend

caused the establishment of the oak-hickory dominance in the uplands ca. 3,000 B.C.

The study area is situated within the Carolinian Biotic Province (Dice 1943:16), an area characterized by a rich faunal assemblage. Cleland (1966:Appendix G) lists 303 vertebrates, excluding fish, that occur in this biotic province. Recent studies indicate that the West Tennessee area is represented by at least 42 species of fish, 50 species of birds, 13 species of bats, 17 species of small mammals, 24 species of large mammals, and 28 species of amphibians and reptiles (HNTB 1982). The West Tennessee Tributaries project is located in the Mississippi Flyway,an important habitat for waterfowl, especially mallard and wood ducks (HNTB 1982:3-118).

The climate of the area is characterized by relatively mild winters, hot summers and abundant rainfall (Brown et al. 1965:3). The average annual temperature in West Tennessee is approximately 60 degrees Fahrenheit (HNTB 1982:3-18). The area has an average annual rainfall of approximately 48 inches and the relative humidity is about 70 percent (Brown et al. 1965:3-4).

The two major soils in the study area are Waverly silt loam and Falaya silt loam. These poorly drained silt loams occur in the lowest part of the bottomlands (Brown et al. 1965:16,25). These soils are either wet or flooded during certain periods of the year.

Chert is known to occur in gravel bar deposits of the Mississippi River, gravel deposits outcropping at the base of the loess bluffs, and in stream beds near the eastern margin of the loess deposits (Smith 1971:2). Locally occurring cherts are cream and tan in color (Smith 1972d:24). The distinctive Camden and Fort Payne cherts of the western Tennessee River Valley were utilized by prehistoric inhabitants of the West Tennessee area (Smith 1979d:24; Jolley 1981:45). Analysis of lithic artifacts recovered from the Hatchie River survey suggest that raw material was a scarce and valued resource (Jolley 1981:45).

Saucier (n.d.) has recently identified and delineated a series of West Tennessee stream terraces. Four terraces have been identified in the Forked Deer River drainage: the Finley Terrace, the Hatchie Terrace, the Humbolt Terrace and the Henderson Terrace. The two youngest terraces, the Finley Terrace and the Hatchie Terrace, are the two most dominant terraces in the vicinity of the project area. The Hatchie Terrace is Sangamonian in age and the Finley Terrace, the youngest and most extensive terrace formation, probably correlates in time with the early Wisconsin stage outwash (Saucier n.d.:18).

The identification and delineation of West Tennessee stream terraces is critical to understanding prehistoric settlement systems. Previous archaeological investigations in the West Tennessee region suggest that prehistoric settlement patterns emphasized terraces adjacent to stream floodplains (Smith 1979b:1). However, Euro-American land clearing

practices have caused extensive siltation that has likely covered low lying terraces (Smith 1979b:2).

The floodplain is the dominant physiographic zone in the project area. This physiographic zone would have been prone to seasonal flooding and could not have been occupied year round by prehistoric populations. The floodplain was most likely used by hunters and gatherers to exploit riverine resources. The floodplain may have been used by prehistoric agriculturalists because the silt loams of the floodplains would have been well suited for prehistoric agriculture (cf. Ward 1965). Seasonal flooding would also inhibit historic occupation of the floodplain. However, one residence and three outbuildings are currently located on the floodplain adjacent to the drainage channel in the project area. The 1952 topographic maps illustrate five residences and six outbuildings located in the floodplain of the project area. One historic site type, mills, would be expected to occur in bottomland areas. The 1907 Corps of Engineers' map of the South Fork of the Forked Deer illustrates several mill sites located adjacent to the stream channel. Two mill sites, the W. F. Wilson saw mill, and the Huffman saw mill, were located on the original stream channel in the vicinity of the project area.

Most of the South Fork of the Forked Deer River was channelized in the 20th century. Twentieth century maps of the project area indicate significant changes. Harts' 1907 map (Figure 5) illustrates the South Fork of the Forked Deer River before it was channelized. The river has a broad floodplain with many marshes. The 1952 topographic quadrangles indicate that most of the project area consisted of woodlands or swamp. The 1981 and 1983 photo revisions of the 1952 topographic maps illustrate changes in land use patterns; most of the wooded areas and swamps have been converted into agricultural fields.

Three culturally relevant conclusions regarding the environment can be made:

1) Seasonal flooding of the bottomlands would have restricted prehistoric and historic occupation in the project area.
2) Geomorphological considerations suggest a high probability for buried terraces with prehistoric occupations in the project area.
3) Previous archaeological investigations in neighboring areas of West Tennessee indicate that lithic resources are scarce and that Fort Payne and Camden chert of the western Tennessee River Valley would have been utilized in the study area.

III. PREVIOUS ARCHAEOLOGICAL WORK

Although several archaeological sites have been recorded in the project vicinity, only one site (40CT10) has been recorded within the

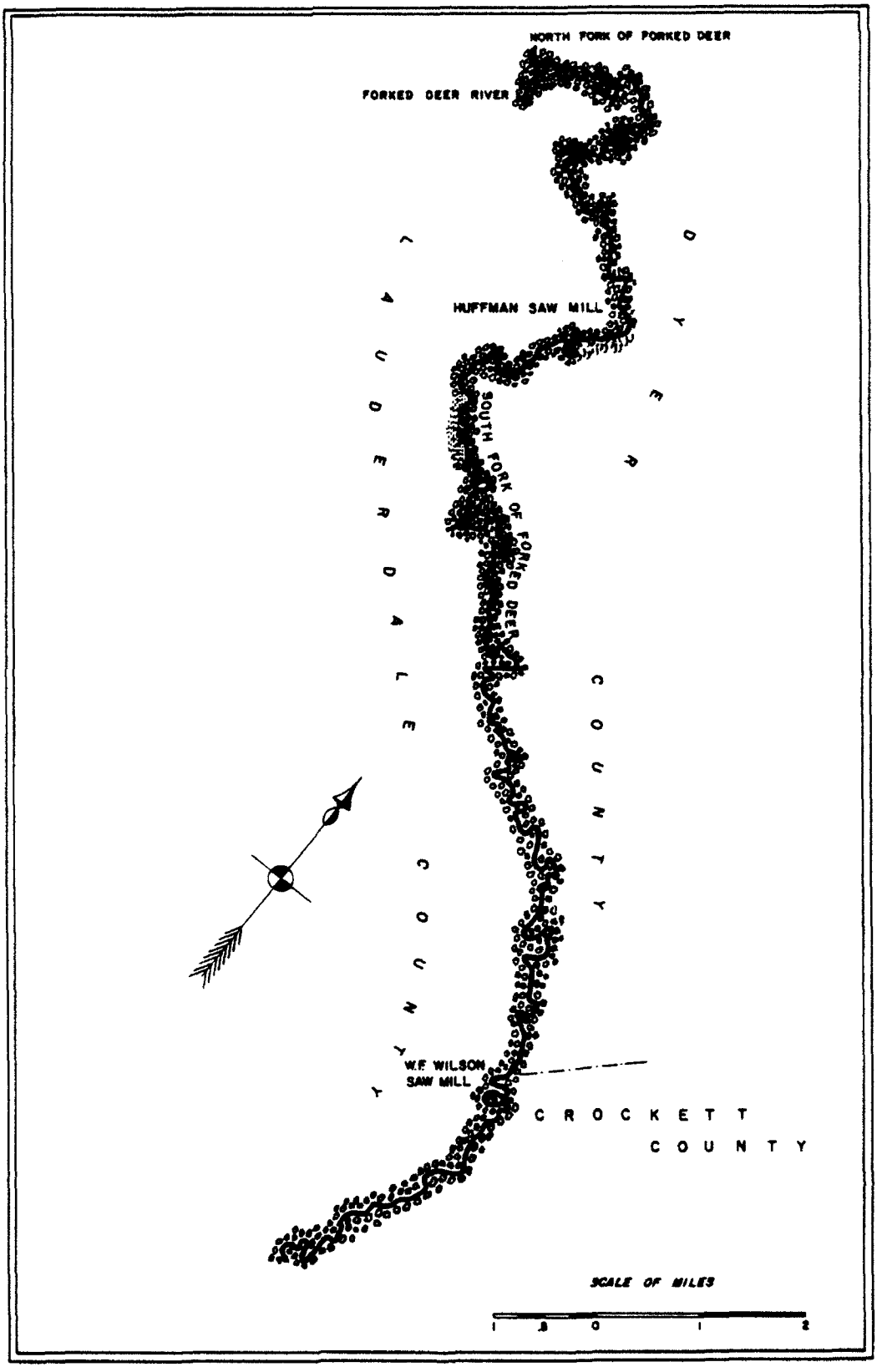

Figure 5. Harts' 1907 map of the project area.

project right-of-way. The site survey records identifies the site as an Archaic "hunting camp" measuring 80 feet in diameter. A "Poverty Point" period component has been identified at this site (Smith 1979a:83).

Five sites (40DY23, 40DY24, 40DY25, 40CT8 and 40CT9) have been recorded along the bottomlands and terraces adjacent to the project right-of-way. Early Archaic, Archaic, Transitional Archaic and Woodland components have been identified at these sites. One site (40CT9) is located immediately adjacent to the right-of-way. Smith (1979a:83) has identified a Poverty Point component at 40CT9. Other sites recorded immediately downstream and upstream from the project area (40DY13, 40CT5, 40CT6 and 40CT7) have been identified as Late Archaic and Woodland "hunting camps".

The establishment of cultural historical sequences for the West Tennessee area has been inhibited by a dearth of excavated sites. The earliest scientifically conducted excavations in West Tennessee were conducted in 1882-1883 by Cyrus Thomas (Smith 1971:3). Other excavations were conducted by WPA work crews in 1940-1941 at 40HY14 and Chucalissa. Major excavations have resulted in the reporting or synthesis of only three sites: Obion (Baldwin 1966), Pinson (Broster 1975; Broster and Schneider 1975) and Chucalissa (Nash 1972). All of these sites are major ceremonial complexes dating to the Middle Woodland or Mississippian periods.

Major archaeological sites in West Tennessee were noted by 19th century antiquarians (Haywood 1823; Williams 1873:142-143) and many prominent archaeological sites, including mounds, were recorded by Myer (n.d.a) in the early 20th century. Most archaeological surveys in West Tennessee have been conducted within the past 15 years. Surveys conducted for the U.S.D.A. Soil Conservation Service include investigations of the Obion-Forked Deer River and Reelfoot-Indian Creek drainages (Smith 1979a), the Mud Creek drainage (Dye 1975), the Cypress Creek drainages (Peterson 1975; Jolley 1984), the Wolf River drainage (Peterson 1979a) and the Loosahatchie River drainage (Peterson 1979b). Recent investigations by the Tennessee Division of Archaeology include a survey of the Hatchie River drainage (Jolley 1981). These investigations provide a basis for evaluating the current status of archaeology in West Tennessee.

The earliest recognized cultural assemblage in the West Tennessee area dates to the Paleoindian period (ca.14,000-8000 B.C.). Sites dating to this period have been identified in several different watersheds throughout West Tennessee, including the Loosahatchie River (Peterson 1979b:32), the Wolf River (Peterson 1979a:29), the Cypress Creek watersheds (Peterson 1975:14, Jolley 1984:29), Mud Creek (Dye 1975:18), the Obion-Forked Deer River (Smith 1979a:33), the South Fork of the Forked Deer River (Broster 1982:102) and the Hatchie River (Jolley 1981:26). Paleoindian components have been identified by the presence of Dalton, Clovis, Cumberland, Quad, Hardaway, Greenbrier and Plano projectile points/knives. Those surveys with a sample size greater than 50 have a 1.6 to 8.9% sample of Paleoindian sites. The Wolf and Loosahatchie River surveys have the greatest percentage of Paleoindian sites and the Cypress Creek (McNairy County) and Obion-Forked Deer surveys have the lowest percentage. The Pierce site, located in Chester County, West Tennessee has the most

intensive Paleoindian occupation that has been identified to date. The Pierce site artifact assemblage suggests stone tool manufacture, hunting and butchering activities (Broster 1982:102). Broster suggests that this site may have been attractive to Paleoindians because of the local ecological setting.

Early Archaic sites have been identified throughout West Tennessee. These sites have been identified by the presence of Palmer, Cypress Creek, Lost Lake, Decatur, Kirk Stemmed, Big Sandy, Plevna, Haywood, Kirk Corner Notched, Eusta and St. Albans projectile points/knives. Some investigators have classified what are currently recognized as Late Paleo projectile points/knives (Dalton and Greenbrier) and Middle Archaic projectile points/knives (Eva) as Early Archaic artifacts (Peterson 1975:14; Smith 1979a:39). Those surveys with a sample size greater than 50 sites have a 6.2 to 18.6% sample of Early Archaic sites. The greatest percentage of Early Archaic sites have been recorded in the Cypress Creek watershed (McNairy County) and the lowest in the Wolf River watershed. Early Archaic sites cluster in the lower Mud Creek watershed (Dye 1975:19) and the lower Wolf River watershed (Peterson 1979a:31); however, the significance of this clustering has not been evaluated. The settlement location of Early Archaic settlements in the Hatchie River survey suggests the presence of ephemeral or seasonal occupations (Jolley 1981:26).

The classification and identification of Middle Archaic artifacts remains a continuing problem. Some investigators have assigned Benton projectile points/knives to the Middle Archaic period (Peterson 1979a:33) but others have assigned them to the early Late Archaic period (Smith 1979a:39). Moreover, Smith (1979a:70) maintains that Bartlett projectile points/knives are contemporaneous with Benton projectile points/knives while Peterson (1979b:37) assigns this projectile point/knife to the Late Archaic period. Nonetheless, Middle Archaic components have been identified by the occurrence of Stanly, Morrow Mountain, Opossum Bayou/Nonconnah, Benton and Cypress Creek projectile points/knives. Based upon investigations conducted in neighboring areas, the Middle Archaic period has been subdivided into four different categories (Peterson 1979a:35): Stanly (5500-5000 B.C.), Morrow Mountain (5000-4200 B.C.), Oppossum Bayou/ Nonconnah (4200-3500 B.C.) and Benton (3500-2200 B.C.). Survey data indicate that the Middle Archaic period is best represented by the occurrence of Benton projectile points/knives, especially in the Wolf and Loosahatchie watersheds. The chert types present at Benton sites suggest a seasonal round between the Tennessee Valley and the loess zone adjacent to the Mississippi Alluvial Valley (Smith 1972:111).

Late Archaic sites have been identified by the presence of stemmed projectile points/knives (Pickwick, Ledbetter, Kays and Lick Creek). Previous investigators have also classified later period artifacts (Cotaco Creek projectile points/knives, baked clay objects and fiber tempered ceramics) with the Late Archaic period (cf. Dye 1975:20; Peterson 1975:15, Peterson 1979a:36). The problem with differentiating Late Archaic from Transitional projectile points/knives (cf. Peterson 1979b:44-45) remains unresolved and has prompted one investigator to form a Late Archaic/ Transitional component category (Jolley 1981:30). Taking these problems

into consideration, those surveys with a sample greater than 50 have a 22% to 26.8% sample of Late Archaic sites. The greatest percentage of recorded Late Archaic sites occur in the Loosahatchie and Cypress Creek (McNairy County) drainages. A population expansion during this period has been suggested for the Cypress Creek drainage (Peterson 1975:15).

The term "Poverty Point" has been used by Smith for the period dating from 1500 to 500 B.C. Smith (1979a:2) believes that the period represents "the expanding frontier of Poverty Point culture which was centered far to the south in northeastern Louisiana and west-central Mississippi." On the other hand, Peterson (1979a:25) believes that the use of this term in West Tennessee is unwarranted and prefers to use the term Transitional. The two terms are chronologically synonymous, the main difference between the terms is that the term "Poverty Point" suggests cultural similarities with the Lower Mississippi River Valley (Jolley 1981:31). Transitional/Poverty Point sites have been identified by the presence of baked clay objects and stemmed projectile points/knives. However, two major problems exist with identifying Transitional/Poverty Point components; Late Archaic and Transitional projectile points/knives are difficult to distinguish (Peterson 1979b:45; Jolley 1981:30) and baked clay objects have been found in association with Early Woodland ceramics at Pinson (Broster and Schneider 1975:22). Before these problems were encountered, different phases of the Transitional/Poverty Point period were postulated on the basis of contrasting configurations of both projectile points/knives and baked clay objects (Smith 1972:113). Four phases have been postulated for the Obion-Forked Deer drainage: the Harris Island, Holly Grove, Kenton and Stokes phases (Smith 1979a:73). Survey data from several West Tennessee drainages indicate an increase in the number of identified Transitional/Poverty Point sites. This has led some investigators to suggest a population increase during this period (cf. Peterson 1979a:38; Jolley 1981:33).

The subdivision of the Woodland period is problematic (Peterson 1975:16). The absence of a well-established ceramic typology for the West Tennessee region (cf. McNutt 1979:5-21; Jolley 1981:36-43) precludes segregating most Woodland ceramics into Early, Middle and Late Woodland categories. The problems with West Tennessee ceramic typologies have been extensively reviewed elsewhere (McNutt 1979:5-21; Jolley 1981:36-43). The problems can be summarized as follows: 1) there has been no formally established West Tennessee ceramic typology based upon intensive testing or excavation of West Tennessee Woodland sites, 2) two different sets of neighboring ceramic series, the Miller and the Mississippi Alluvial Valley series, have been applied to the West Tennessee area, neither of which may be totally appropriate for the West Tennessee area, 3) the establishment of provisional ceramic types and the revision of previously established ceramic typologies has created considerable confusion and 4) the problem of determining whether sand is an intentional tempering agent or an incidental inclusion remains a subjective determination.

Early Woodland components have been identified by the presence of fabric impressed ceramics and Adena projectile points/knives (Jolley 1984:28). Early Woodland sites have also been identified in the Cypress

Creek watershed (McNairy County) by the presence of Alexander ceramics (Peterson 1975:16). Smith (1979a:75-79) has identified Early Woodland sites by the occurrence of ceramics that he has classified as Tchefuncte, Thomas and Baldwin. However, the identification and chronological placement of these wares has been questioned by others (McNutt 1979:18-19; Peterson 1979a:40; Jolley 1981:40-41).

According to Smith (1979a:3), it has not been possible to establish a clearly identifiable Middle Woodland trait assemblage in West Tennessee. An informally defined ceramic type named Knob Creek, consisting of coarse sand particles and crushed quartz, is suspected to date to the Middle Woodland period (Smith 1979c:41-42). However, Broster and Schneider (1975:60-68) have dated sand and clay/grit tempered wares excavated at the Pinson mounds site to the Middle Woodland period and Dye (1975:21) has identified Middle Woodland sites in the Mud Creek watershed by the presence of sand tempered ceramics. Middle Woodland components have been identified in the Cypress Creek watershed by the occurrence of Copena projectile points/knives (Jolley 1984:28). Recent excavations at the Pinson Mounds site have determined that the majority of the mounds and associated "occupation" areas date to the Middle Woodland period (Broster and Schneider 1975:81). Other mounds that may date to the Middle Woodland period have been recorded in the West Tennessee area (Myer n.d.a; Peterson 1975:17).

Late Woodland sites are common in the Mississippi delta region of westermmost Tennessee and the loess hills zone southwest of the Hatchie River (Smith 1979a:47-48). Identifiable Late Woodland sites are rare in the interior of West Tennessee, especially in the Wolf and Loosahatchie drainages (Peterson 1979a:40, 1979b:46). Late Woodland sites have been previously identified by the presence of Tishomingo ceramics (Smith 1979a:40) and clay-grit tempered ceramics (Dye 1975:22). However, problems exist with defining and identifying Late Woodland components. Peterson (1979a:40) suggests that the Late Woodland period may be misconstrued and that excavations into what are now interpreted as earlier ceramic sites are necessary to clarify this problem.

Several different Mississippian phases, including the Walls, Boxtown, Ensley, Tiptonville and Reelfoot phases have been postulated for the West Tennessee area (Smith 1970). These phases have not been defined by the synthesis of chronologically sensitive data recovered from excavated contexts in West Tennessee. Site survey records and previous investigations indicate that major Mississippian habitation sites are located in the Mississippi Alluvial Valley and the bordering loess bluffs. Mississippian occupation to the east of these areas appears to be minimal (cf. Smith 1979a, 1979b; Peterson 1979a, 1979b). Three surveys conducted in the interior of West Tennessee failed to record any Mississippian sites (Peterson 1975; McNutt 1979; Jolley 1984).

The assessment of previous archaeological work emphasizes the absence of a clearly defined cultural sequence for the area. Unlike neighboring areas, few archaeological sites have been excavated. Yet there have been more phases postulated for West Tennessee than in neighboring areas. Periods and phases are ill defined because they are based upon

data recovered from surface surveys and the extrapolation of data from neighboring areas. Previous investigations in the West Tennessee area have aided in postulating cultural-historical sequences and have provided data on settlement patterns and the exploitation of raw materials. Data from excavated contexts are needed to better define cultural sequences, and to establish the settlement and subsistence systems.

IV. RESEARCH OBJECTIVES

Archaeological investigations in the project area hold potential for fulfilling several research objectives. These research goals include but are not limited to: 1) isolating variables for the location of prehistoric settlements and settlement types, 2) determining intra site variability, 3) raw material utilization studies, 4) artifact classification, 5) obtaining data relevant to the cultural history of the region and 6) obtaining information on historic sites.

Variables affecting the location of prehistoric settlements and settlement types

Previous archaeological surveys in the West Tennessee region (e.g. Smith 1979a, 1979b; Peterson 1979a, 1979b; Jolley 1981) suggest considerable variation in the size, density, location and distribution of prehistoric sites. These studies suggest that soils, proximity to water, ecological factors, the local topography and physiographic factors will affect the density and location of aboriginal settlements. Archaeological investigations in the project area may provide additional settlement data.

The project area is dominated by one physiographic zone, the floodplain. Previous archaeological surveys in West Tennessee have not focused on floodplain areas. Previous investigations suggest that prehistoric settlement patterns emphasize terraces and that many terraces may be buried (Smith 1979b:1). Research within the project area may help scientifically test Smith's buried terrace hypothesis.

Smith (1979b:21) has previously asserted that certain kinds of West Tennessee sites are restricted to certain soil associations. A recent survey of the Cypress Creek watershed has suggested that the occurrence of Woodland sites is correlated with high capability yield soils (Jolley 1984). An assessment of the effects of this variable for the portion of the project area located in Dyer County (Brown et al. 1965), the county with a published soil survey, may be made.

Intra site variability

Piece plotted collections and controlled surface collections may provide data on intra site structure. Little information on intra site variability is available for the West Tennessee area. Controlled surface collections and total site collections may provide data on activity areas

and artifact clustering. This data may be used to predict the location of subsurface remains (e.g., features).

Raw material utilization

Chert is known to occur along gravel deposits of the Mississippi River (Smith 1971:2). However, one archaeological study indicates that Fort Payne and Camden chert from the western Tennessee River valley was used in the neighboring Hatchie River drainage (Jolley 1981:45). This study indicates that these chert types are represented by finished artifacts. These findings provide a comparative data base for the project area. Based upon these findings it may be hypothesized that exotic raw materials may be present and that raw materials may be intensively utilized in the project area. Local outcrops of raw materials will be obtained to aid in this research goal.

Artifact classification

Previous typologies for the West Tennessee region have been formed without data from stratigraphic sequences. The ceramic typology devised by Smith (1979a:75-78) is an attempt to correlate surface data with data obtained from excavated contexts in Mississippi. However, Smith's classificatory scheme is not entirely in agreement with those that are currently in use by investigators in Mississippi (cf. Smith 1979a:76-77). One investigator maintains that Smith's ceramic typology is premature and that a typology needs to be formed only after significant Woodland sites have been intensively tested (Jolley 1981:42).

The current typology in use in West Tennessee for projectile points/knives does not pose as many problems as the ceramics because typologies from adjacent areas are more applicable to the West Tennessee area. Archaeological investigations in the project area may provide data that will aid in solving the current typological problems.

There are two major classificatory schemes that have been applied to historic artifact assemblages (Stone 1974;South 1977). South's scheme is based upon group and class definitions, many of which are temporally and spatially restricted. South's classificatory scheme requires extensive modification to accommodate the more diverse and complex artifact assemblages characteristic of the 19th and 20th centuries (cf. Jolley and Newman 1982). Stone's classificatory scheme, which assigns artifacts to the setting or place that they are most commonly used, more accurately reflects site function. Moreover, Stone's scheme is less complex and is readily adapted to 19th and 20th century assemblages. Stone's classificatory scheme will be applied to historic artifacts recovered from the project area.

Historic sites

Very little is known about rural historic sites in the West Tennessee area. This cultural resource has been largely neglected until recently

(cf. Smith 1979b; Stripling 1980; Jolley 1984). It is not anticipated that many historic sites, except mills, will be located in the flood-prone bottomlands. Variables affecting the location of mill sites (e.g. transportation routes, water rights and millseat quality) have been suggested for the Duck River located in middle Tennessee (cf. Jolley and Newman 1982:133) and these variables can be applied to the West Tennessee area.

Cultural History

Archaeological investigations in the project area will generate data on the cultural history of the region. The available data suggest variation in the cultural history of different drainages and physiographic provinces of West Tennessee. The data sets relating to cultural history can be compared to other data sets recovered from the West Tennessee area. For example, the phases proposed by Smith (1979a:73-82) for the "Poverty Point" period and Woodland period may be evaluated. Project data may help to refine the cultural sequences that have been outlined based upon Smith's surface surveys.

V. ARTIFACT TYPOLOGIES

The absence of data from stratigraphic sequences has hindered the establishment of clearly defined cultural sequences in the West Tennessee area. The problem centers around the recognition and definition of meaningful ceramic and lithic types. Investigators working in the West Tennessee region have had to borrow extensively from typologies established in neighboring areas. These borrowed typologies have varying degrees of applicability depending upon the artifact class (i.e. ceramic versus lithic) and the region where the typology was formed.

Ceramic typology

Some previous investigators (e.g. Broster and Schneider 1975; Smith 1979a) have used formally established ceramic typologies for the West Tennessee region. These ceramic types were not formed for the West Tennessee area but were borrowed from two different sets of neighboring ceramic series, the Miller and the Mississippi Alluvial Valley series. McNutt (1979:19) maintains that neither ceramic series may be totally appropriate for the West Tennessee area and that types and/or varieties based upon local material need to be established. This investigator concurs with McNutt's observation. The ceramics recovered from the Halls-Fowlkes investigations were classified according to temper and surface decoration rather than formal types established elsewhere. This same approach was used by this investigator for two previous West Tennessee surveys, the lower Hatchie River survey (Jolley 1981) and the Cypress Creek survey (Jolley 1984).

Baked Clay Objects

The previous typologies used by Smith (1979a:125) and Connaway et al. (1977:74-81) for baked clay objects were employed. These typologies take into consideration the shape and surface treatment of the artifact. The term "Poverty Point Objects" was not used for this artifact class because it suggests chronological and cultural similarities with the Lower Mississippi River Valley.

Lithic Typology

Two different kinds of classificatory schemes for projectile points/knives are currently in use for the West Tennessee region. Smith (1979a:68-71) has established a type variety system that is based upon data obtained from reconnaissance surveys. His typology incorporates types previously defined in adjacent areas with types that he has established. Smith ascribes both chronological and spatial significance to the type variety system that he has outlined. Other investigators (e.g., Peterson 1979a; Jolley 1981) have not used a type variety system but have used types recognized by Smith and/or types that have been defined for neighboring areas.

Projectile point/knife typologies established for the West Tennessee region (Smith 1979a: 97-124) and neighboring areas (Cambron and Hulse 1964; Faulkner and McCollough 1973:87-155) were consulted. The type names used by Smith (1979a) and Cambron and Hulse (1964) were used rather than Faulkner and McCollough's Normandy code numbers. The type variety system established by Smith was not used.

All projectile points/knives recovered from archaeological sites including unidentified and damaged examples are illustrated. The illustrations serve two purposes: 1) other investigators may reclassify these artifacts to conform to their typological scheme and 2) the artifacts may be reclassified into more meaningful types if future typologies are refined.

The typology for other lithic tools and lithic debitage is the same as that which was used by this investigator in East Tennessee (cf. Jolley 1982:17-19). The typology uses morphology, lithic reduction sequences, manufacturing techniques and macroscopic wear patterns as distinguishing criteria. The typology for debitage uses lithic reduction sequences and manufacturing techniques and the typology for tool classes uses morphological characteristics and macroscopic wear patterns.

A typology incorporating lithic reduction sequences aids in determining lithic processing activities at a site. Lithic reduction sequences also reflect the size, kind and availability of the utilized raw material sources. Lithic typologies established for Middle Tennessee (Faulkner and McCollough 1973:63-159) and East Tennessee (Schroedl 1978:159-175; Chapman 1979:183; Kimball 1980:84-85) have in most instances used lithic reduction as a criteria for flake categories; however, in no instance has it been used for core categories. Three core categories were

established to measure the degree to which raw material was processed: limited flake cores, random flake cores and core nuclei. Limited flake cores represent the first stage of core reduction, random flake cores the intermediate stage and core nuclei the final stage. More importantly, these core categories may reflect site function. For example, a high incidence of limited flake cores would be expected at lithic extraction sites.

The typology used for tool classes is comparable to other Middle and East Tennessee typologies (cf. Faulkner and McCollough 1973; Kimball 1980). Definitions for the tool classes used herein can be found in these reports. Since the debitage categories used by this investigator vary from other typologies, each category will be defined.

Flake Categories

Decortication	Flakes that exhibit cortex on the outer surface.
Flat	Interior flakes that do not exhibit cortex on the outer surface and cannot be assigned to the other flake categories.
Bifacial thinning/resharpening	Flakes that have been removed from a biface during manufacture or resharpening. These flakes are characterized by a faceted striking platform, a convex profile and previous bifacial flake scars on the outer flake surface.
Core trimming flake	Flakes that were detached from a core to prepare a new striking platform. These flakes are generally thicker than flat flakes and are characterized by a well defined striking platform.
Shatter	Flakes that have no striking platform or bulb of percussion.
Burin Spalls	Waste flakes produced during the manufacture of burins. These flakes are characteristically thick and triangular in cross-section.
Bipolar	Flakes produced by the bipolar technique. These flakes are characterized by crushed ends and abrupt hinge fractures.

Core Categories

Limited Flake	Cores that have a limited number of flakes removed (less than five) and retain over 75% cortex. These unreduced cores were probably discarded because of poor knapping properties.
Random Flake	Cores, irregular in form, that display no patterned removal of flakes and can not be categorized as limited flake cores or core nuclei.
Core Nucleus	Cores that are exhausted. No additional flakes can be removed or platforms prepared.
Blade	Cores from which blades are struck.
Bipolar	Cores produced by the bipolar technique. These cores are characterized by two opposing platforms. The platforms are shattered or crushed and the flakes removed display abrupt hinge fractures.
Core Fragments	The remnants of cores that were shattered.

VI. FIELD METHODS AND IMPLEMENTATION

The field methods for conducting all aspects of this work were outlined in the scopes of work prepared by the Memphis District, Corps of Engineers. Modifications of the scopes of work were sometimes made by the contracting officer's designated representative to ensure expedient implementation of the investigations.

Four site discovery methods were used during the first two phases of fieldwork. These methods include: 1) a pedestrian survey, 2) shovel cut testing, 3) a boat survey of the riverbanks and 4) deep testing.

The first site discovery method that was implemented was an intensive pedestrian survey of the project area. This was accomplished by a two man survey team walking transects parallel to the existing channel. The transects were spaced at approximately 30 meter intervals.

A shovel cut testing program was the second site discovery method that was outlined in the scope of work. The scope of work proposed that shovel cut tests be excavated at 30 meter intervals in those areas that had poor ground visibility. Test units a minimum of 30 x 30 cm in size were to be excavated to a depth of 50 cm below the ground surface and all fill was to be screened through 1/4 inch hardware cloth. This method could not be implemented effectively because most of the right-of-way area was cultivated in winter wheat. The contracting officer's designated representative proposed an alternate way of detecting sites in areas cultivated in cereal crops. A 1 x 1 meter area at the base of the crop, where ground visibility was good, was examined at 30 meter intervals. One site (40DY54) was discovered and one previously recorded site (40CT10) was relocated using this technique.

A survey of both sides of the river channel was conducted by motorized jonboat to locate sites eroding from the riverbank. The riverbank profiles were scraped at 500 meter intervals or wherever significant stratigraphic changes were visible. All high probability areas were also examined. The riverbank survey was conducted by the project gemorphologist and an archaeologist so that the geomorphic and archaeological data could be correlated in the field. Two buried sites (40DY55 and 40DY56) were recorded during the riverbank survey.

A buried site reconnaisance was conducted to look for buried sites. A model for site location was formed and tested by the project geomorphologist. Eight backhoe trenches were excavated. Cultural material was recovered from four of the backhoe trenches.

A permanent datum (i.e., lead pipe) was established at each archaeological site. All work that was conducted at each site (i.e, controlled surface collections and test units) was tied into this datum.

The scope of work specified that a controlled surface collection be obtained from each site. The minimum size of the sample (25%) and the maximum size of the collection units (6 x 6 meters) were specified. Controlled surface collections were conducted at 40DY54 and 40CT10. Controlled surface collections were not conducted at 40DY55, 40DY56 and 40DY57 because these were buried sites. A 100% controlled surface collection was obtained from 40DY54. Two separate controlled surface collections were obtained from 40CT10, a 10% and a 25% sample. A 25% sample was not obtained the first time because the site was cultivated in winter wheat over one meter tall. The size of the collection units for all the controlled surface collections was 5 x 5 meters.

The scope of work specified that at least one 1 x 1 meter square test unit be excavated at each archaeological site. The methods and recovery techniques for the testing were outlined in the scope of work. Each test unit was excavated in 10 cm levels. Test units were excavated to a depth of 20 cm below cultural bearing zones and a portion of each test unit (30 x 30 cm) was excavated to a depth of 40 cm below each cultural

bearing zone. All fill was screened through 1/4 inch hardware cloth. Relevant data (e.g. soil types and profile drawings) were recorded for each test unit.

The specifications for testing that were outlined in the scope of work had to be modified for sites that were buried. Testing was not conducted at one buried site, 40DY57, because the site was not endangered. A backhoe was used to remove the overburden at two buried sites, 40DY55 and 40DY56. Since the depths of the archaeological deposits were defined in the riverbank profile, sterile levels beneath the cultural bearing zones were not excavated at these two sites.

VII. RESULTS OF THE ARCHAEOLOGICAL INVESTIGATIONS

Archaeological investigations were conducted at five sites and two loci. The results of these investigations, including the deep testing program, are described in this section of the report.

40CT10

40CT10 is situated on an alluvial terrace of the South Fork of the Forked Deer River. The site was recorded by Gerald Smith in 1973. Smith identified the site as a possible "hunting camp" measuring 80 ft in diameter. The cultural material collected from the site in 1973 included projectile points/knives, flakes and a grindstone. A "Poverty Point" component was identified at this site (Smith 1979a:83). Soil probe work conducted by the project geomorphologist indicates that the soil association for this site is a Calloway silt loam.

A partial controlled surface collection was conducted at 40CT10 in May 1984. The site was cultivated in winter wheat over one meter tall and the ground visibility varied from 50 to 70%. Two transects, one east-west and one north-south, were collected using 5 by 5 meter collection units. The dimensions of the site, as defined by the two transects, are 90 m (N-S) by 105 m (E-W). In addition to the controlled surface collection, two ceramics were piece plotted. The location of one of these artifacts expanded the north-south dimension of the site to 115 meters.

One 1 x 1 meter test unit was excavated at 40CT10 in May 1984. The test unit was excavated where the two transects intersected, an area located in the central portion of the site. Two 10 cm levels were excavated below the plow zone and one corner of the test unit (30 cm by 30 cm) was excavated in 10 cm levels to a depth of 20 cm. All material was screened through 1/4 inch hardware cloth.

A second phase of fieldwork was conducted at 40CT10 in August 1984. After the first phase of fieldwork was conducted, the Memphis District, Corps of Engineers determined that they could not avoid impact of the site. Sufficient data had not been obtained from the first phase of work to make

a determination of site significance. Thus a more intensive controlled surface collection and testing program was conducted.

A 25% controlled surface collection employing 5 by 5 meter collection units was obtained in August. The site (Figure 6) was cultivated in soybeans approximately one meter tall and the ground visibility varied from 60 to 80%. The grid of the first controlled surface collection was maintained; however, the grid axis was turned 7.5 degrees east of north, the orientation of the row crops. Otherwise, the controlled surface collection would have been impeded by the height of the soybeans and crop damage would have been more extensive. The 25% sample was obtained by collecting every fourth north-south transect. The site boundaries, as defined by the second controlled surface collection, are 110 m (N-S) by 105 m (E-W). These dimensions are similar to the site dimensions defined by the first controlled surface collection.

Eight 1 x 1 meter test units were excavated during the second phase of fieldwork (Figure 7). Test units were excavated in 10 cm levels and all material was screened through 1/4 inch hardware cloth. All test units were excavated to a depth of 40 cm below the plow zone. Test units were placed in two different areas. Four test units were excavated at 10 meter intervals in the transect with the greatest debris density and four test units were excavated in the northeast sector of the site. These two areas are located on the crest of the knoll that the site is situated on.

A backhoe trench (Backhoe Trench 8) was excavated along the western boundary of 40CT10 to look for buried cultural deposits. Descriptions of the eight historic artifacts and six prehistoric artifacts recovered from this trench are provided in the deep testing section of this report.

Artifact Inventory

Ceramics

A total of 60 ceramics was recovered. The ceramic assemblage includes 17 sand tempered residual, 13 clay tempered residual and 30 sand/clay tempered residual sherds. The majority of ceramics (N=47) are small sherds recovered from the test excavations.

Baked clay objects (Figure 8)

Sixty-nine baked clay object fragments were recovered. Most fragments are small; however, spherical/biconical forms are suggested for five fragments. Most of the artifacts (N=60) were recovered from the test excavations.

Projectile points/knives (Figure 8)

Seven projectile points/knives were recovered from the surface. The projectile points/knives include 1 Kirk Corner Notched, 1 Benton, 2 undifferentiated stemmed, 1 Adena Ovate Base and 2 unidentified/incomplete. Four pp/ks are made of local chert, one is made of Fort Payne/Camden

Figure 6. View of 40CT10.

Figure 7. Excavation of test units at 40CT10.

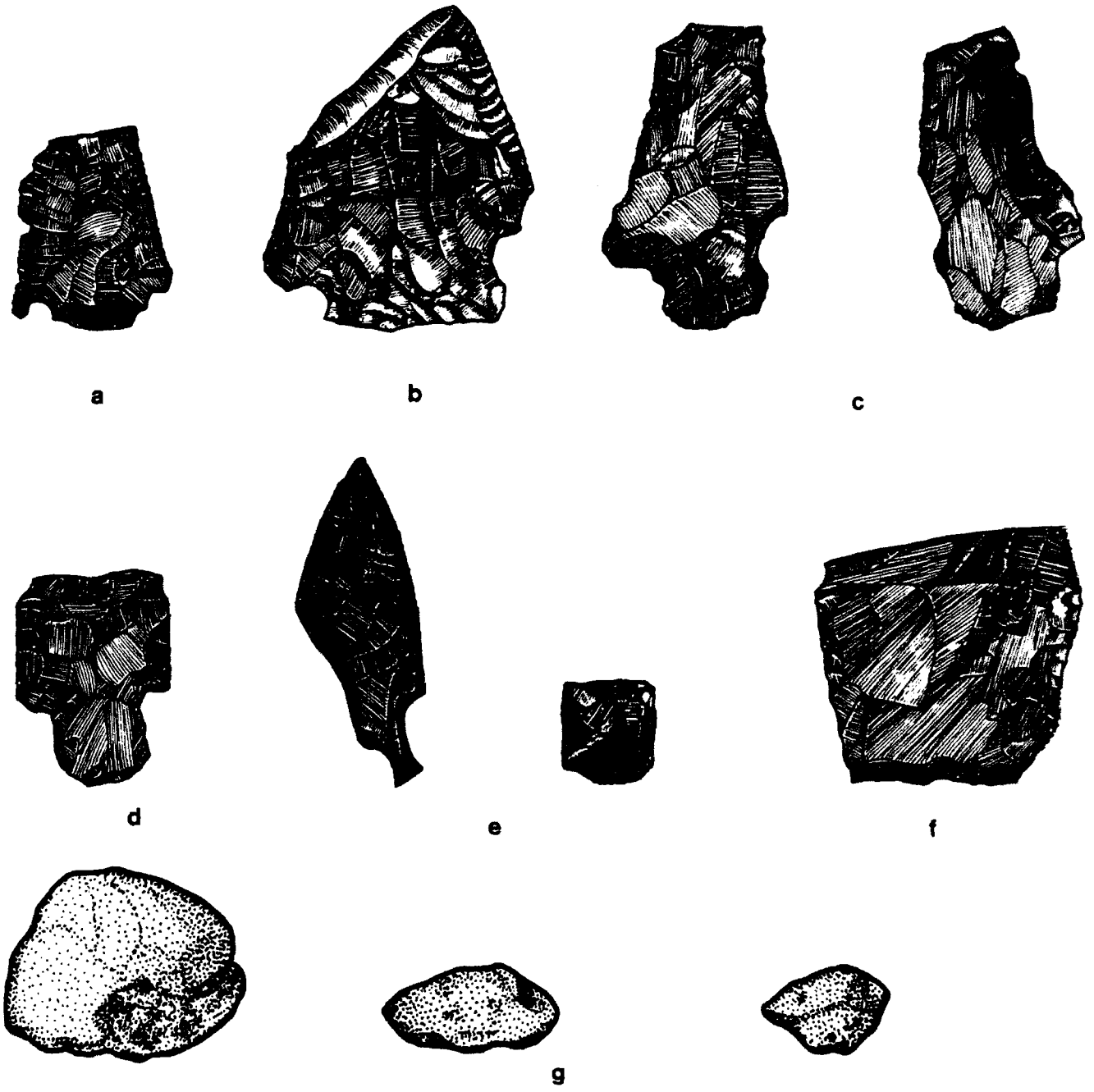

Figure 8. Selected artifacts recovered from 40CT10: a) Kirk Corner Notched pp/k; b) Benton pp/k; c) undifferentiated stemmed pp/ks; d) Adena Ovate Base pp/k; e) unidentified/incomplete pp/ks; f) square base thin biface/knife; g) baked clay object fragments.

(undifferentiated stemmed) and two are made of unidentified chert (2 unidentified/incomplete).

The Kirk Corner Notched pp/k has a damaged base and a broken distal end. The blade is slightly beveled and the flaking pattern is characteristic of Early Archaic pp/ks. This example measures 34+ mm x 25 mm x 8 mm. The Benton pp/k has a broken distal end, a broad beveled blade and a beveled base. This pp/k measures 53+ mm x 48 mm x 11 mm. The two undifferentiated stemmed pp/ks date to the Late Archaic/Transitional period. One of these pp/ks has a broken distal end and measures 51+ mm x 32 mm x 12 mm. The other example has been reworked along the edges of the blade, and has a broken distal end and shoulder (48+ mm x 23 mm x 11 mm). The Early Woodland Adena Ovate Base pp/k has a broken distal end and measures 34+ mm x 24 mm x 7 mm. The remaining two pp/ks are unidentified and incomplete specimens. One of these pp/ks has a square base and measures 16+ mm x 15 mm x 6 mm. The other unidentified pp/k measures 56 mm x 20 mm x 8 mm and has a damaged and reworked base. The flaking pattern on this pp/k is similar to Early Archaic pp/ks.

Thin bifaces/knives

Eleven artifacts were assigned to this category. The assemblage includes two proximal sections, seven medial sections and two distal ends. One square base thin biface/knife and one ovate base thin biface/knife are represented. The two distal ends may be from pp/ks. One distal end has a beveled blade characteristic of Benton pp/ks and one distal end has a serrated edge characteristic of Early Archaic pp/ks. Four examples are made of local chert, four are made of Fort Payne/Camden chert and three are made of unidentified chert.

Drills/reamers

One square base drill was recovered from the surface. The drill has a broken base and distal end. This artifact is made from Fort Payne/Camden chert and measures 32+ mm x 29 mm x 8.5 mm.

Choppers

Two artifacts made of ferruginous sandstone/siltstone (fs/s) were identified as choppers. Both examples have roughly flaked edges that have been battered.

Hammerstones

Two chert hammerstones were recovered from the surface.

Pitted hammerstones

Three pitted hammerstones made of fs/s were recovered from the surface. Two hammerstones have a single shallow depression and one has an irregular series of peck marks on the central portion of one side of the cobble.

Manos

One mano fragment was recovered from the surface. The artifact is made of sandstone and has worn edges.

Retouched/utilized flakes

Forty-one retouched/utilized flakes were recovered. The greatest percentage of retouched/utilized flakes (sample size greater than five) are flat (31.7%) and shatter (41.5%)(Table 1). The greatest percentage of retouched/utilized flakes (sample size greater than five) in comparison to unutilized flakes of the same category are flat and decortication flakes. The intentional selection of certain flake categories for utilization is also evident at 40DY54 and other areas of West Tennessee (Jolley 1981:45).

Flakes

A total of 192 flakes was recovered. The flake categories include 117 shatter (60.9%), 37 flat (19.3%), 20 decortication (10.4%), 12 bifacial thinning/resharpening (6.3%), 4 core trimming (2.1%) and 2 blade-like (1.0%).

Cores

Thirty-one cores were recovered. The core categories include 17 core fragments, 7 limited flake cores and 7 random flake cores.

Burned clay

Seven fragments of burned clay were recovered from the test excavations.

Ferruginous sandstone/siltstone

A total of 186 fragments of fs/s weighing 2,712.6 grams was recovered. Forty-four fragments weighing 2,455.8 grams were recovered from the surface and 142 fragments weighing 256.8 grams were recovered from the test units. According to Peterson (1979a:22), the source area for this raw material lies toward the east in the tertiary uplands.

Thermally fractured chert

Ninety-three fragments of thermally fractured chert weighing a total of 786.8 grams were recovered. Forty-nine fragments weighing a total of 691 grams were recovered from the surface and 44 fragments weighing a total of 95.8 grams were recovered from the test excavations. These artifacts most likely were used as hearth stones, but some may represent heat treatment failures.

Table 1. Percentage of retouched/utilized flakes by flake type (40CT10).

Retouched/Utilized Flakes		
Decortication	8	19.5%
Flat	13	31.7%
Shatter	17	41.5%
Core Trimming	1	2.4%
Bifacial thinning/resharpening	1	2.4%
Blade-like	1	2.4%
	41	

Flake Type	Unutilized	Retouched/Utilized	Percentage of Retouched/Utilized Flakes
Decortication	20	8	29%
Flat	37	13	26%
Shatter	117	17	13%
Core Trimming	4	1	20%
Bifacial Thinning	12	1	8%
Blade-like	2	1	33%
	192	41	

Sandstone

Five fragments of sandstone weighing a total of 30.6 grams were recovered. One fragment weighing 20.7 grams was recovered from the surface and four fragments weighing 9.9 grams were recovered from the test units.

Historic remains

A total of 86 historic artifacts was recovered (Table 2). The historic assemblage was grouped according to Stone's (1974) classifactory scheme. The household group has the greatest percentage (76.7%) followed by the structural group (16.3%) and the unclassified group (7.0%). The historic remains suggest a late 19th to 20th century domestic occupation. The ceramic assemblage includes 20 whiteware (19 undecorated and 1 molded), three stoneware (2 Albany slip and 1 Bristol glaze) and one undecorated porcelain. According to Greer (1981:264), Albany slip vessels commonly date to after 1875 and Bristol glaze vessels date to after 1890. Forty-three fragments of glass, including 13 clear, 1 clear pressed, 7 purple-tinged, 11 aqua, 1 cobalt blue, 9 amber and 1 purple-tinged pressed were recovered. Purple-tinged glass dates from 1880 to 1914 (Smith 1976:170). The historic assemblage also includes 13 corroded nails, 1 fragment of scrap lead and 5 unidentified metal artifacts. Most of the historic artifacts were recovered from the second controlled surface collection.

Discussion

This multicomponent site has Early Archaic, Middle Archaic, Late Archaic/Transitional, Woodland and historic occupations. The site is situated on an alluvial terrace of the South Fork of the Forked Deer River. The settlement location of this site would permit year round occupation.

A total of 291 lithics, 60 ceramics and 69 baked clay object fragments was recovered from 40CT10 (Table 3). Most of the lithic assemblage (Table 4) consists of lithic debitage (76.6%) and unifacial tools (14.1%). The majority of ceramics and baked clay objects are small fragments recovered from the test excavations.

Table 4. Lithic assemblage (40CT10).

Bifacial tools	19	6.5%
Unifacial tools	41	14.1%
Hammerstones/ Choppers	7	2.4%
Manos	1	.4%
Lithic debitage	223	76.6%
	291	100.0%

Table 2. Historic remains (40CT10).

	1st CSC	2nd CSC	Test Units	Total
Ceramics				
Whiteware				
Undecorated		18	1	19
Molded		1		1
Stoneware				
Albany slip		2		2
Bristol glaze		1		1
Porcelain				
Undecorated		1		1
Glass				
Clear	1	10	2	13
Aqua		8	3	11
Amber		7	2	9
Cobalt Blue		1		1
Purple-tinged		7		7
Purple-tinged pressed	1			1
Clear pressed		1		1
Metal				
Corroded nails		2	11	13
Scrap lead			1	1
Unidentified		5		5
	2	64	20	86

Table 3. Artifact Proveniences (40CT10).

	1st CSC	2nd CSC	Test Units	Total
Ceramics				
Sand tempered residual	4		13	17
Clay tempered residual	1	1	11	13
Sand/clay tempered residual	3	4	23	30
Baked clay objects	4	5	60	69
Lithics				
Projectile points/knives	4	3		7
Thin bifaces/knives	2	5	4	11
Drills/reamers	1			1
Choppers	2			2
Hammerstones	1	1		2
Pitted hammerstones		3		3
Manos	1			1
Retouched/utilized flakes	18	8	15	41
Decortication flakes	9	8	3	20
Flat flake	13	7	17	37
Shatter	29	19	69	117
Core trimming flake	2		2	4
Bifacial thinning/ resharpening flake	5	1	6	12
Blade-like flake	1		1	2
Core fragments	2	11	4	17
Limited flake core	1	5	1	7
Random flake core		6	1	7
Historic remains	2	64	20	86
Miscellaneous				
Burned clay			7	7
Thermally fractured chert	35	14	44	93
F s/s	29	15	142	186
Sandstone		1	4	5
	169	181	447	797

A raw material analysis (Table 5) indicates that most raw material represented in the lithic assemblage (74.2%) is local chert. Unidentified chert comprises 12.0% of the lithic assemblage and Fort Payne/Camden chert comprises 8.9%. The raw material analysis suggests differential utilization of raw material for different artifact categories. Fort Payne/Camden chert comprises 31.6% of the bifacial tool assemblage, suggesting that this raw material was selected for bifacial tool manufacture. All the pitted hammerstones and choppers are made from fs/s. Unlike 40DY54, quartz and quartzite are not represented in the lithic assemblage recovered from 40CT10.

A relatively small number of prehistoric artifacts (N=410) were recovered from 40CT10, yet a wide range of activities are represented. The artifact assemblage suggests procurement and maintenance tasks such as food processing, woodworking, butchering, hunting and the manufacture and repair of tools. The small sample size precludes determining site function.

Distribution maps of both controlled surface collections (Figures 9, 10, 11 and 12) were compiled to determine spatial densities for comparative purposes. The maps illustrate the prehistoric debris density, the historic debris density, selected tool classes and the density of fs/s and tfc. The fs/s and tfc categories are not included in the prehistoric debris density maps.

The first controlled surface collection (a 10% sample) consisted of two transects across the axis of the site. This controlled surface collection (csc) determined the site boundaries and provided data on the site components. The first csc suggested that debris density at this site was sparse. The greatest number of prehistoric artifacts recovered from a collection unit was nine items. The small sample size precluded determining artifact clustering; however, the sample suggested that prehistoric tools and utensils clustered in the center of the site. Only two historic artifacts were recovered from the surface, suggesting that the historic occupation was minimal. No pattern to the distribution of fs/s and tfc was discerned.

A larger sample (25%) was obtained for the second controlled surface collection. This csc confirmed that the debris density was sparse. The results of the second csc suggest that the site debris density was sparser than the first csc, a likely result of differential surface visibility. The low artifact density precludes establishing clear patterns of debris density; however, a slight density increase is evident along a 40 meter section of the E460 transect. This potential pattern is enhanced by artifact clustering. All the pitted hammerstones (N=3) and 80% of the ceramics recovered from the surface were found in this portion of the E460 transect. The clustering of these food processing and storage utensils suggests an activity area or the patterned discard of these activity related artifacts. The second csc was successful in defining the limits of the historic remains. The second csc indicates that the historic remains cluster in the southwest section of the site. The distribution of fs/s and tfc suggests no clear pattern.

Table 5. Raw material analysis (40CT10).

	Local chert	Fort Payne/ Camden	Unidentified chert	F s/s	Sandstone	Total
Lithic Assemblage						
Bifacial tools	8	6	5			19
Unifacial tools	30	8	2	1		41
Hammerstones	2			3		5
Choppers				2		2
Manos					1	1
Flakes	146	12	28	6		192
Cores	30			1		31
	216	26	35	13	1	291
Flakes						
Decortication	19			3		20
Flat	29	2	5	1		37
Shatter	91	6	18	2		117
Core Trimming	3		1			4
Bifacial thinning/ resharpening	5	4	3			12
Blade-like	1		1			2
	146	12	28	6		192

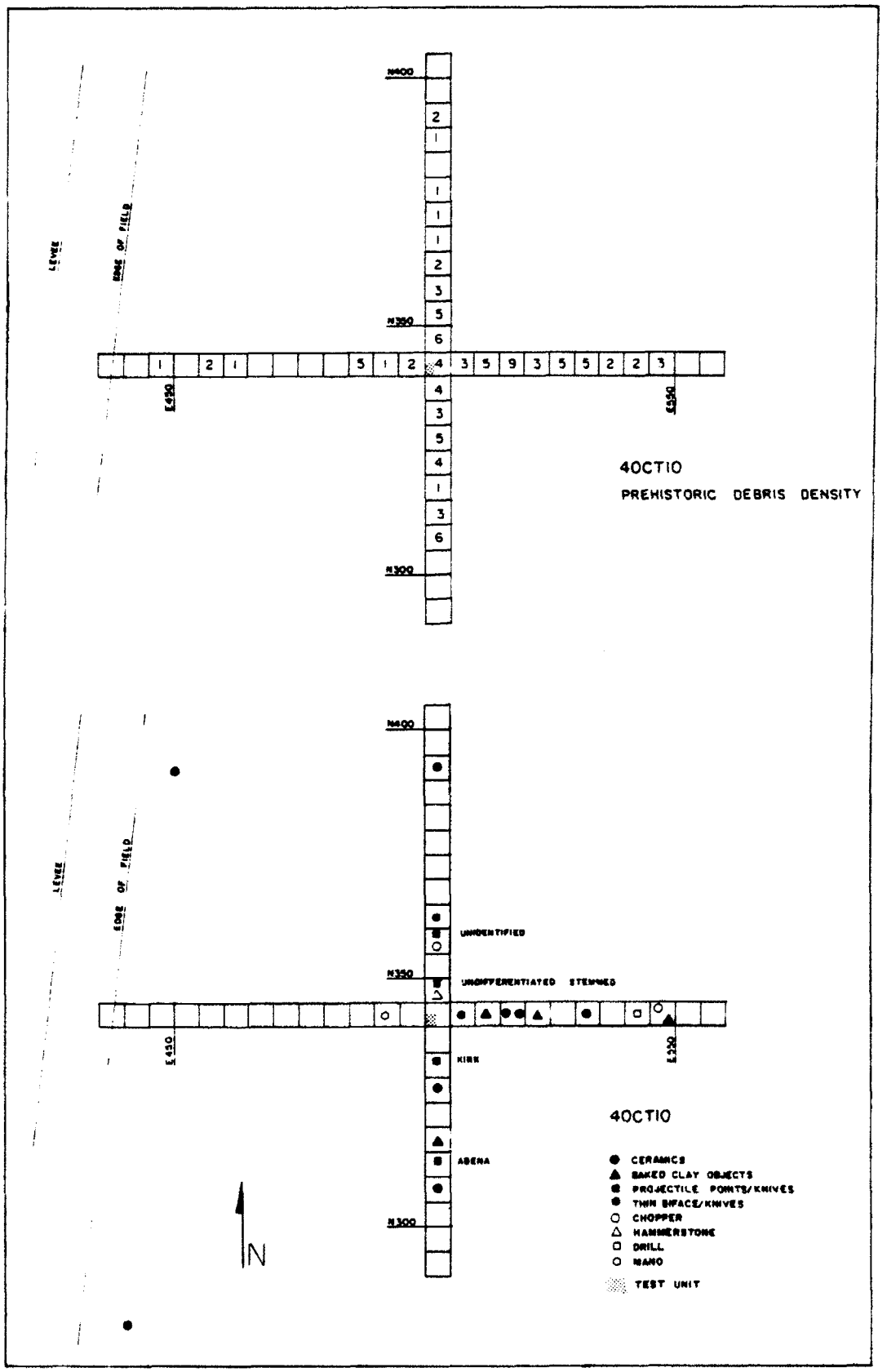

Figure 9. Distribution of selected artifacts and prehistoric debris density at 40CT10 (10% csc).

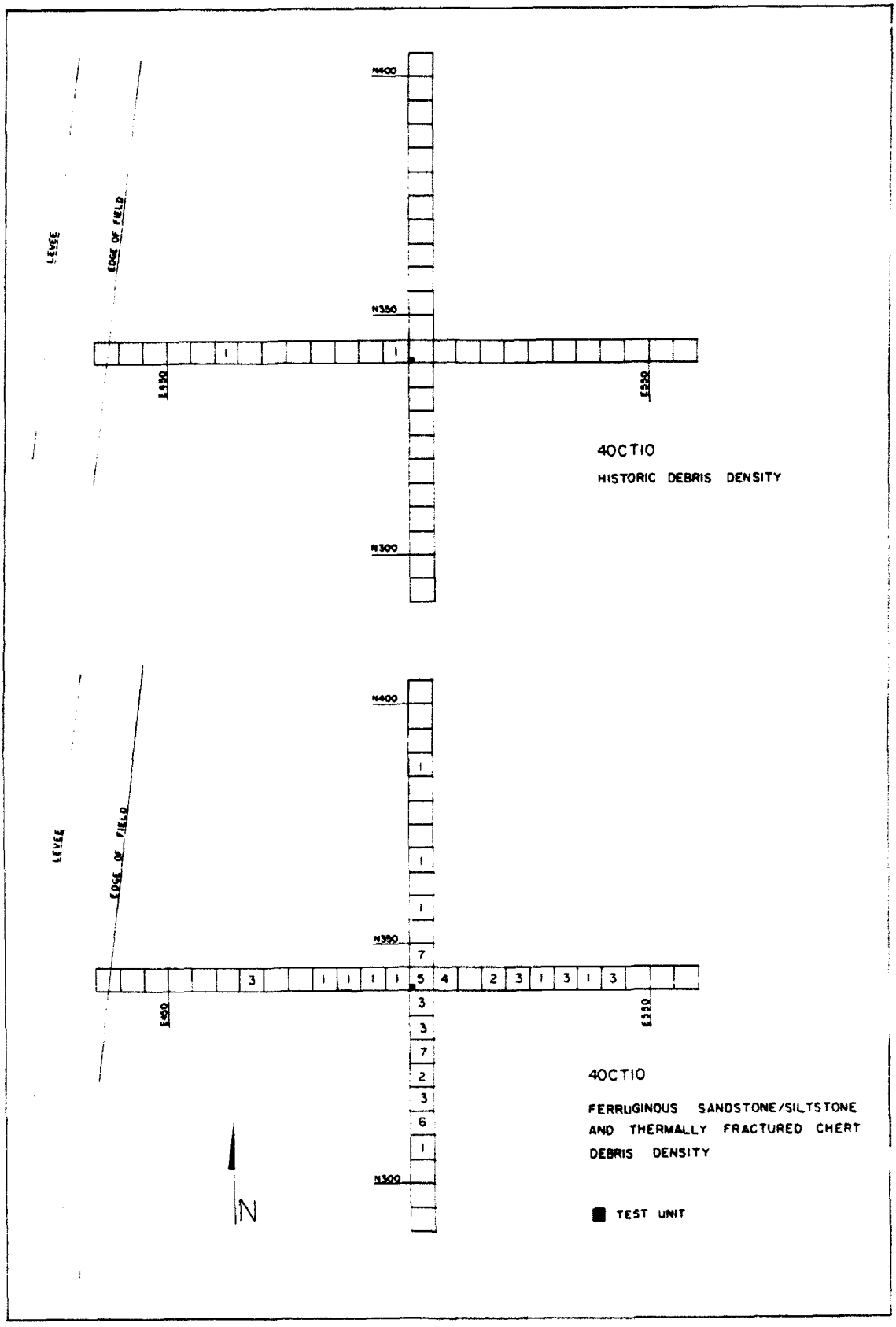

Figure 10. Debris density of historic artifacts, fs/s and tfc at 40CT10 (10% csc).

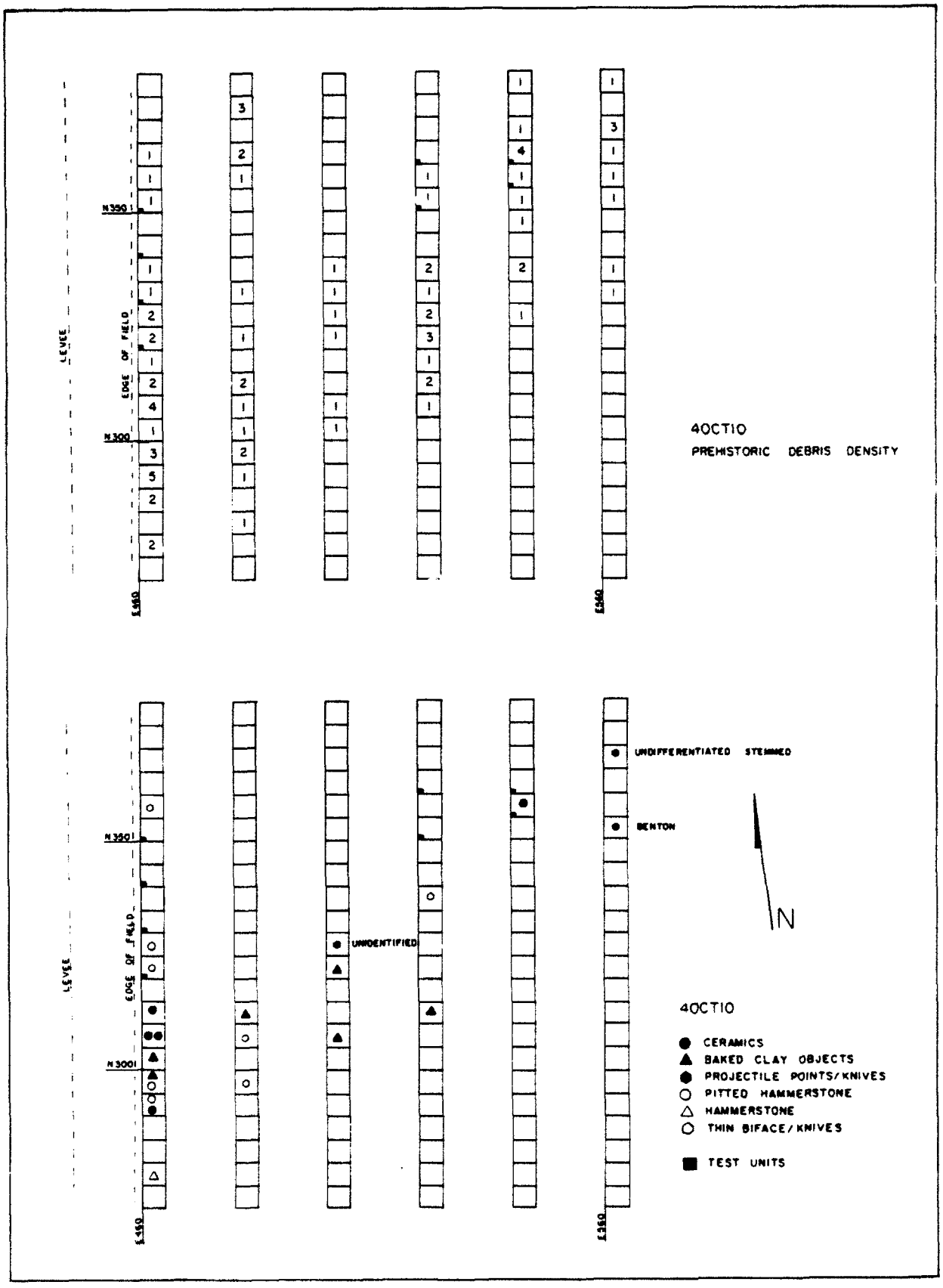

Figure 11. Distribution of selected artifacts and prehistoric debris density at 40CT10 (25% csc).

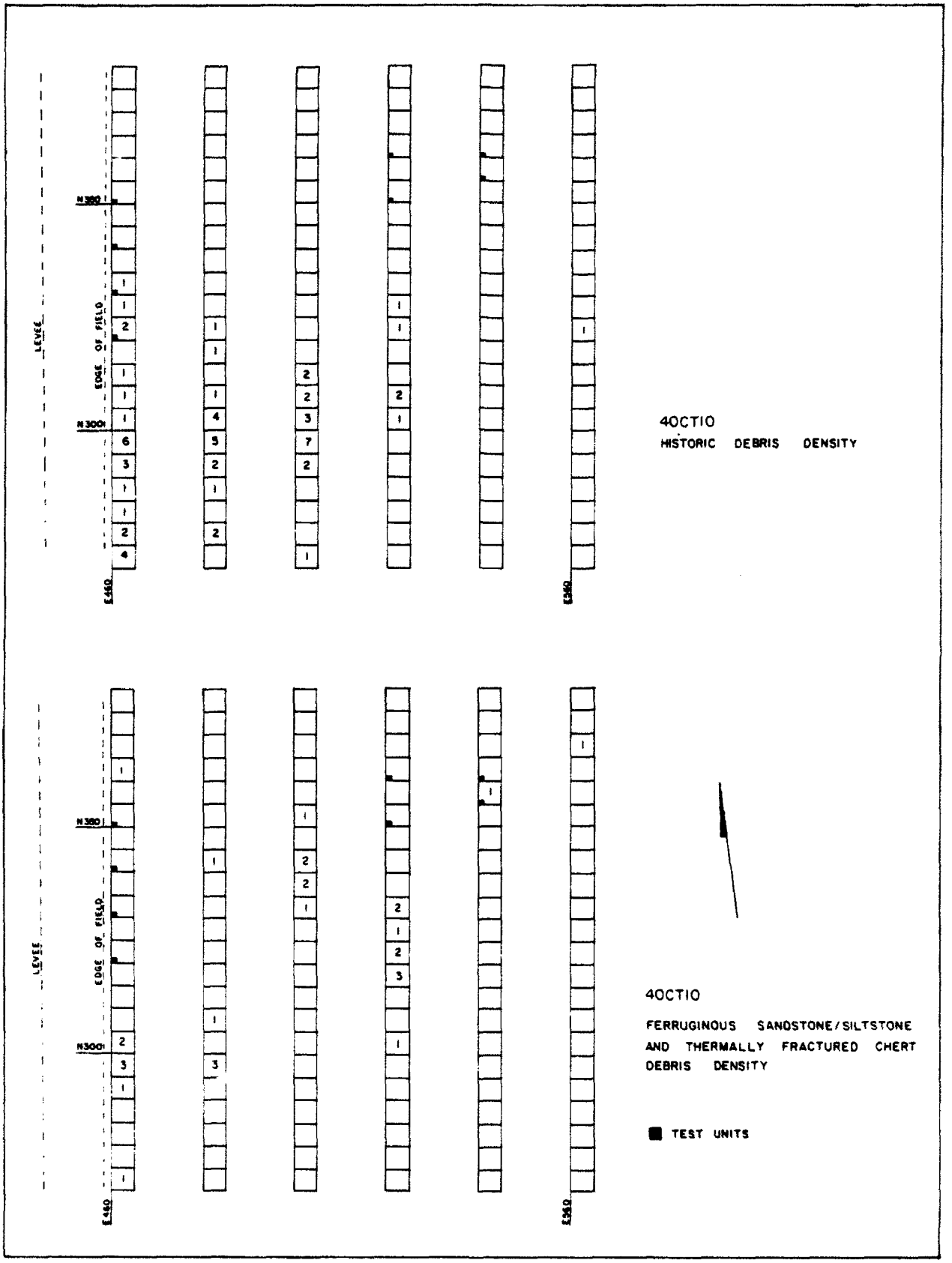

Figure 12. Debris density of historic artifacts, fs/s and tfc at 40CT10 (25% csc).

A comparison of similarities and differences between the two controlled surface collections is instructive. Differences between the two should be expected because the sample size and the collecting conditions were not the same. The first csc was successful in determining the site components and the site size. This information was not substantially altered by data obtained from the second csc. A difference in collecting conditions affected comparisons between the two cscs. Although a greater sample size was obtained from the second csc, a greater number of artifacts were recovered from some collection units during the first csc. A major difference between the two cscs was evident in defining the historic occupation and artifact clustering. The second csc was successful in defining the boundaries of the historic occupation and in determining the density of the historic remains. The first csc suggested that artifacts clustered in the center of the site and the second csc suggested that artifacts clustered along the E460 transect.

Nine 1 x 1 meter test units were excavated at this site. The test excavations indicate that most cultural remains were confined to the plow zone. Two test units that were extensively disturbed had cultural remains occurring below the plow zone. No prehistoric features or midden deposits were encountered in the test units.

Additional archaeological work at this site is not warranted. The site has a sparse debris density. The testing program failed to demonstrate the presence of intact features or midden deposits. The site does not possess sufficient data to address research questions on a local or regional level.

40DY54

This site was recorded during the pedestrian survey of the Fowlkes Item, Parcel 2. The site was cultivated in winter wheat when it was discovered. The site is located on a small rise in the bottomlands of the South Fork of the Forked Deer River. The project geomorphologist determined that the rise was a terrace remnant. According to the Dyer County soil survey (Brown et al. 1965), the site is situated on Falaya silt loam. However, soil probe work by the project geomorphologist indicates that the soil association is Calloway silt loam.

A controlled surface collection, employing 5 by 5 meter collection units, was conducted. Surface visibility varied from 40 to 70 percent. The boundaries of the site, as defined by the controlled surface collection, are 35 meters (N-S) by 25 meters (E-W).

One test unit (1 x 1 meter) was excavated. The test unit was placed in a high artifact density area towards the center of the site. The highest artifact density areas were not selected for testing because of slope erosion. Two 10 cm levels were excavated below the plow zone and one corner (30 cm by 30 cm) was excavated in 10 cm levels to a depth of 20 cm. All material was screened through 1/4 inch hardware cloth.

Artifact Inventory

Ceramics

A total of 37 ceramics was recovered from the controlled surface collection (N=21) and Test Unit 1 (N=16). The ceramic assemblage includes 22 clay tempered residual, 12 clay/sand tempered residual, 2 sand residual and 1 clay/sand tempered cord marked. Most ceramics are small sherds with eroded surfaces.

Baked clay objects (Figure 13)

Sixty-four fragments of baked clay objects were recovered. Forty-six were recovered from the controlled surface collection and sixteen were recovered from Test Unit 1. Most baked clay object fragments are small and their form cannot be identified. One fragment is biconical and two fragments are spherical. Many of the smaller fragments suggest a biconical or spherical form. None of the baked clay objects have decorated surfaces.

Projectile points/knives (Figure 13)

Seven projectile points/knives were recovered from the controlled surface collection. The projectile points/knives include 1 Kirk Corner Notched, 2 Benton, 1 Motley, 1 Mabin-like, 1 Copena and one unidentified fragment (square stemmed base). Five projectile points/knives were manufactured from local chert and two (1 Benton and 1 unidentified) were manufactured from Fort Payne/Camden chert.

The Early Archaic Kirk Corner Notched projectile point/knife has a straight base and a reworked beveled blade. The specimen is complete and measures 34.9 mm x 35.2 mm x 6.3 mm. The two Benton projectile points/knives date to the late Middle Archaic period. Both examples are characterized by beveled bases and blades. One Benton pp/k is complete and measures 59.4 mm x 26.4 mm x 8.5 mm. The other Benton pp/k is broken across the midsection and measures 35.6+ mm x 25.6 mm x 11.3 mm. The Motley pp/k and the Mabin-like pp/k date to the Transitional period. The Mabin-like pp/k has a broken distal end (39.7+ mm x 22.1 mm x 9.8 mm) and the Motley pp/k is represented by the proximal section (19.5+ mm x 19.3 mm x 6.7 mm). The Middle Woodland Copena pp/k has a broken midsection and measures 25.6+ mm x 22.8 mm x 6.2 mm. The one unidentified pp/k fragment has a square base and measures 19.0+ mm x 19.1 mm x 6.2 mm.

Thin bifaces/knives

Six thin bifaces/knives were recovered. Five of the artifacts were recovered from the surface and one was recovered from Test Unit 1. Four of the artifacts assigned to this category were manufactured from Fort Payne/Camden chert and two were manufactured from local chert. Four medial sections, one proximal section and one asymmetrical proximal/distal section are represented. One medial section with a beveled and serrated edge may represent an Early Archaic pp/k. The asymmetrical proximal/distal section may represent a specimen that was discarded during the manufacturing process.

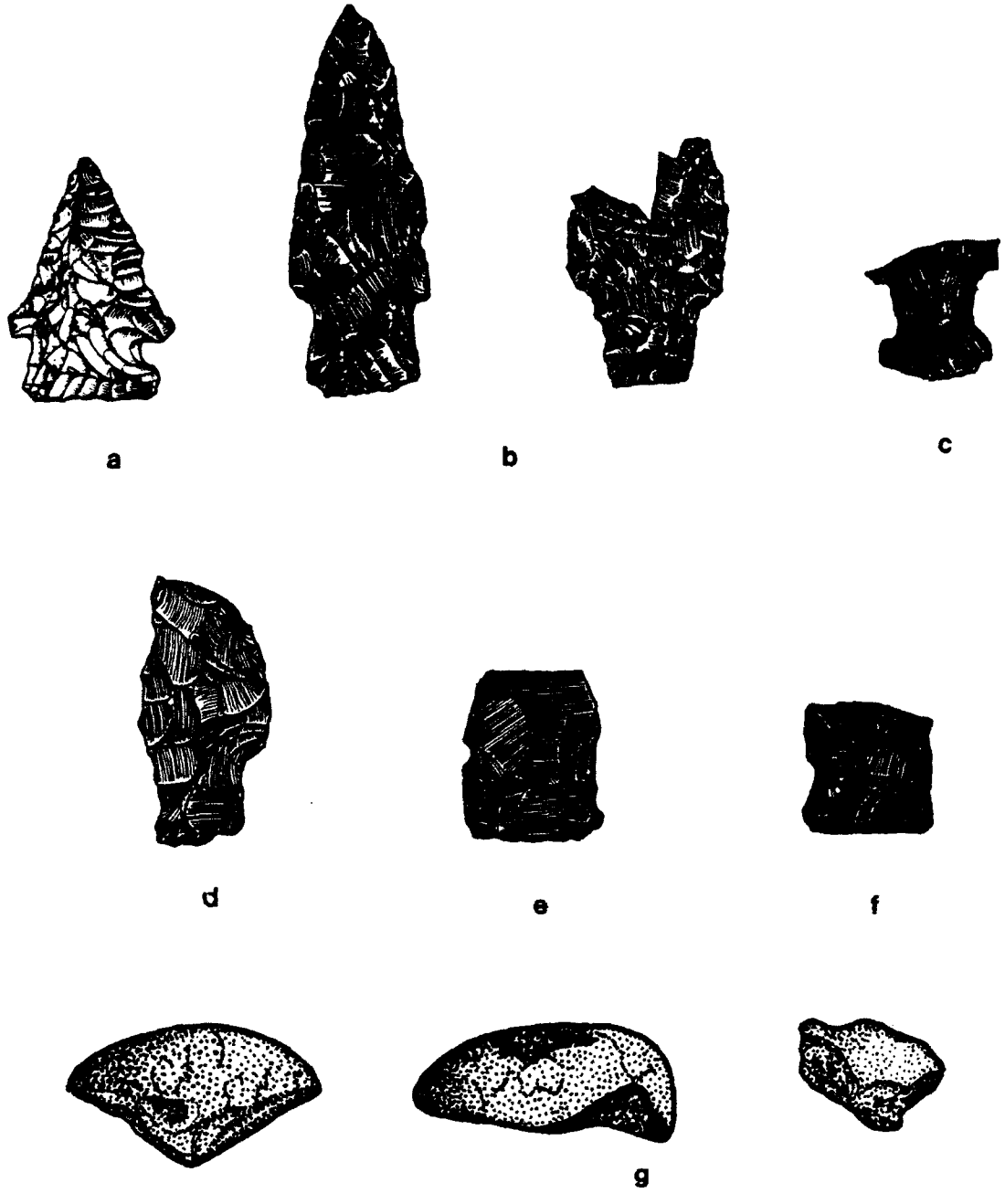

Figure 13. Selected artifacts recovered from 40DY54: a) Kirk Corner Notched pp/k; b) Benton pp/ks; c) Motley pp/k; d) Mabin-like pp/k; e) Copena pp/k; f) unidentified/incomplete pp/k; g) baked clay object fragments.

Thick biface/preform

One thick biface/preform was recovered from the surface. This artifact was manufactured from local chert. The artifact has cortex on the distal end suggesting that it was discarded during the manufacturing process. The specimen measures 49.9 mm x 30.9 mm x 21.5 mm.

Drills/reamers

Two drill fragments were recovered from the surface. Both drill fragments have diamond shaped cross sections and are made from local chert. One drill fragment has a straight, elognate base and the other specimen has an asymmetrical, ovate base. Both drills are broken at the midsection. The straight, elongate base drill measures 70.2+ mm x 10.7 mm x 7.9 mm and the other drill measures 48.5+ mm x 12.5 mm x 7.8 mm. The longest specimen has been reworked and burinated.

Hammerstones

Eight hammerstones were recovered from the surface and one was recovered from Test Unit 1. Eight complete specimens and one fragment are represented. Seven hammerstones are made from local chert, one from quartz and one is made from quartzite. The relative absence of lithic processing activities at this site suggests that these implements were used for processing and maintenance activities.

Mano/milling stones

Two artifacts were assigned to this category. Both were recovered from the surface. One artifact is a quartz mano with abraded edges and a worn flat surface. The other artifact is a ferruginous sandstone/siltstone milling stone fragment with a concave profile and smooth, worn inner surface.

Retouched/utilized flakes

Nineteen retouched/utilized flakes were recovered (Table 6). All of these unifacial tools except one were recovered from the surface. The majority (63.2%) of retouched/utilized flakes are flat flakes. This suggests that this flake type was selected for modification. Comparative data from West Tennessee (Jolley 1981:45), Middle Tennessee (Kline 1979:91) and East Tennessee (Jolley 1982:64) suggest that this flake type was intentionally selected for utilization over a wide geographic area.

Flakes

A total of 110 flakes was recovered. The flake categories include, in order of their frequency, shatter (42.7%), flat flakes (21.85), decortication flakes (20.9%), bifacial thinning/resharpening flakes (11.8%) and core trimming flakes (2.7%).

Table 6. Percentage of retouched/utilized flakes by flake types (40DY54).

Retouched/Utilized flakes		
Decortication	2	10.5%
Flat	12	63.2%
Shatter	2	10.5%
Core Trimming	2	10.5%
Bifacial Thinning	1	5.3%
	17	100.0%

Flake Type	Unutilized	Retouched/Utilized	Percentage of Retouched/Utilized Flakes
Decortication	23	2	8%
Flat	24	12	33%
Shatter	47	2	4%
Core Trimming	3	2	40%
Bifacial Thinning	13	1	7%
	110	19	

Cores

Twenty-two cores were recovered. The core assemblage includes 14 core fragments, four limited flake cores and four random flake cores.

Daub

Six fragments of daub, two with cane impressions, were recovered. All the fragments of daub were recovered from the surface.

Burned clay

Twelve fragments of burned clay were recovered. The majority (N=10) were recovered from Test Unit 1.

Ferruginous sandstone/siltstone

One hundred and forty-one fragments of ferruginous sandstone/siltstone (fs/s) weighing a total of 2,305.4 grams were recovered from the surface. An additional 37 fragments weighing a total of 45.4 grams were recovered from Test Unit 1. According to Peterson (1979a:22), the source area for this raw material lies toward the east in the Tertiary uplands.

Thermally fractured chert

One hundred and twenty-one fragments of thermally fractured chert (tfc) weighing a total of 457.4 grams was recovered. An additional 23 fragments weighing a total of 49.0 grams was recovered from Test Unit 1. These artifacts most likely represent hearth stones but some may have been heat treatment failures.

Historic remains

Six historic artifacts, including four aqua glass fragments, one machine-cut nail shank and one unidentified metal object were recovered.

Discussion

This multicomponent site has Early Archaic, Middle Archaic, Transitional and Woodland period occupations. The site size and debris density suggest that this site was an ephemeral or seasonal occupation. This suggestion is substantiated by the physiographic location. Settlement location in the flood-prone bottomlands would not be conducive to year round occupation.

Table 7 provides data on the lithic subassemblages. A total of 178 lithic artifacts was recovered. The majority of lithic artifacts consists of debitage (74.1%). The percentage of unifacial tools (10.7%) and bifacial tools (9.0%) are similar.

Table 7. Lithic Assemblage (40DY54).

Bifacial tools	16	9.0%
Unifacial tools	19	10.7%
Hammerstones	9	5.0%
Food processing	2	1.2%
Lithic debitage	132	74.1%
	178	100.0%

Data on the type of raw material utilized is provided in Table 8. Most of the raw material is local chert (67.4%). Fort Payne/Camden chert (14.6%) and ferruginous sandstone/siltstone (6.7%) are also represented. The presence of fs/s flakes, cores and one retouched/utilized flake indicates that this material was used as a substitute for chert. A milling stone fragment was also manufactured from fs/s. A small percentage of quartz and quartzite is present in the lithic assemblage (flakes and hammerstones).

The artifact assemblage from 40DY54 is small, yet a wide range of activities are represented. The artifact assemblage suggests procurement and maintenance tasks (hunting, butchering, woodworking, food processing and the manufacture and repair of tools). The presence of unmodified chert cobbles and limited flake cores suggests the acquisition of raw materials for stone tool manufacture. However, the small percentage of limited flake cores suggest that stone tool manufacture was not a major activity at this site (cf. Jolley 1981:17).

A distributional analysis of the surface remains provides information on the internal structure of the site. The lithic debris density, the debris density of ceramic and lithic artifacts, and the debris density of tfc and fs/s (Figure 14) are generally similar. The spatial distribution of tfc and fs/s is broader than other debris categories. An analysis of the distribution of various artifact categories (Figure 15) suggests artifact clustering and the presence of activity areas. Many temporally sensitive artifacts and other tools are found in the central area of the site, an area with the greatest overall debris density. This area of the site contains all the food processing artifacts (1 mano and 1 milling stone) and a cluster of ceramics and baked clay objects. The clustering of artifacts related to food processing and preparation suggests the patterned discard of these activity related artifacts. The spatial distribution of daub (80%) clusters in the southeast corner of the site. This cluster may represent the remains of an architectural feature. There

Table 8. Raw Material Analysis (40DY54).

Lithic assemblage	Local Chert	Ft. Payne/ Camden	Unidentified Chert	F s/s	Quartz	Quartzite	Total
Bifacial tools	10	6					16
Unifacial tools	15	2	1	1			19
Hammerstones	7				1	1	9
Manos/ Milling stones				1	1		2
Flakes	68	18	12	8	1	3	110
Cores	20	—	—	2	—	—	22
	120	26	13	12	3	4	178
Flakes							
Decortication	17				3	3	23
Flat	12	7	3		2		24
Shatter	34	6	4		2	1	47
Core Trimming	2				1		3
Bifacial thinning/ resharpening	3	5	5		—	—	13
	68	18	12		8	4	110

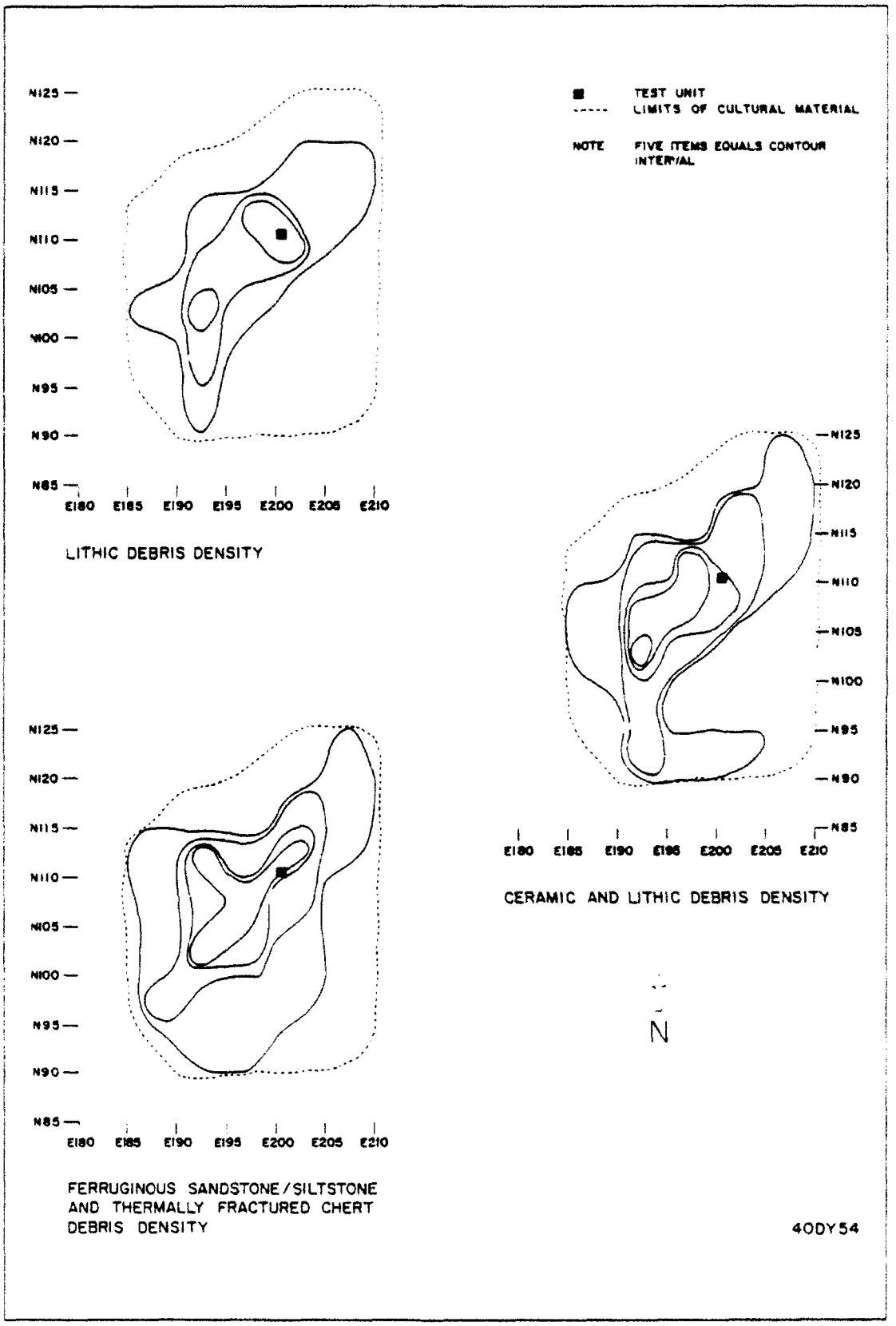

Figure 14. Debris densities at 40DY54.

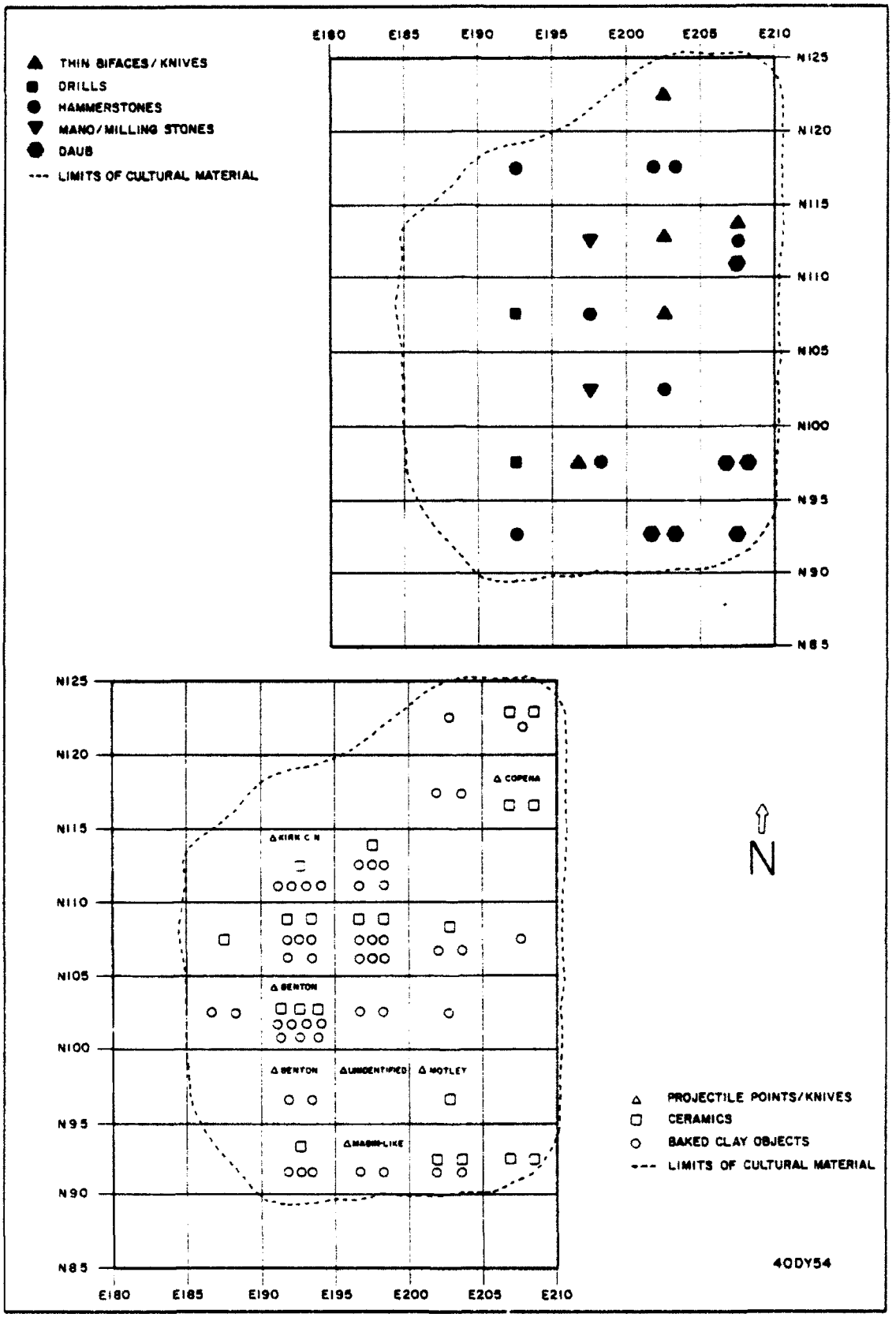

Figure 15. Distribution of selected artifacts at 40DY54.

is no clearly defined pattern for the distribution of drills, hammerstones, thin bifacial knives or pp/ks; however, there is a tendancy for pp/ks to cluster in the southern portion of the site.

Recommendations for additional work at the site are not necessary. The Memphis District, Corps of Engineers does not plan to impact 40DY54.

40DY55

This site was recorded during the riverbank survey conducted in August 1984. The site is located on an alluvial terrace that was bisected by the ca. 1915 channelization of the South Fork of the Forked Deer River. A buried A horizon containing prehistoric remains was recorded 1.4 meters beneath 20th century dredge deposits. Cultural material, including Woodland ceramics, was found on the east and west sides of the channel. The ca. 1915 channelization of the river cut through the center of this site. The old river channel lies 700 feet to the west.

The investigations conducted in August focused on the west side of the riverbank. A buried A horizon measuring 76 meters long was defined on this side of the riverbank. A cursory examination of the east side of the channel indicated the presence of a buried A horizon containing prehistoric remains.

One radiocarbon date was obtained from the west side of the riverbank. A 40 gram carbon sample was taken from near the base of the ?Ab1 horizon (see gemorphic section of this report). The radiocarbon sample dated to 30 B.C. $\pm$ 50. This carbon sample dates the Woodland component of the site.

Additional work at this site was conducted after it was learned that the Memphis District, Corps of Engineers planned to impact the east side of the riverbank. Work was conducted in June 1985 to define site boundaries and assess site significance. The exposed portion of the east riverbank was profiled to define the limits of the buried A horizon and three 1 x 2 meter test units were excavated. A buried A horizon measuring 55 meters long was defined. The buried A horizon is 8-12 cm thick and is buried beneath 1.42 meters of 20th century dredge deposits. Three artifacts were recovered from the riverbank profile. Three test units were excavated at 20 meter intervals and were placed approximately three meters from the riverbank (Figure 16). A sparse amount of cultural material was recovered from the test units.

A total of 70 artifacts was recovered from the riverbank profiles and the three test units (Table 9). The majority of ceramics (91%) were recovered from the west side of the riverbank. One Woodland sherd was recovered from the test excavations conducted on the east side of the riverbank. No diagnostic lithic artifacts were recovered. Other artifacts recovered from the investigations include one pitted mano (fs/s), and 2 retouched/utilized flakes. The majority of raw material (92%) utilized at the site was local chert (Table 10).

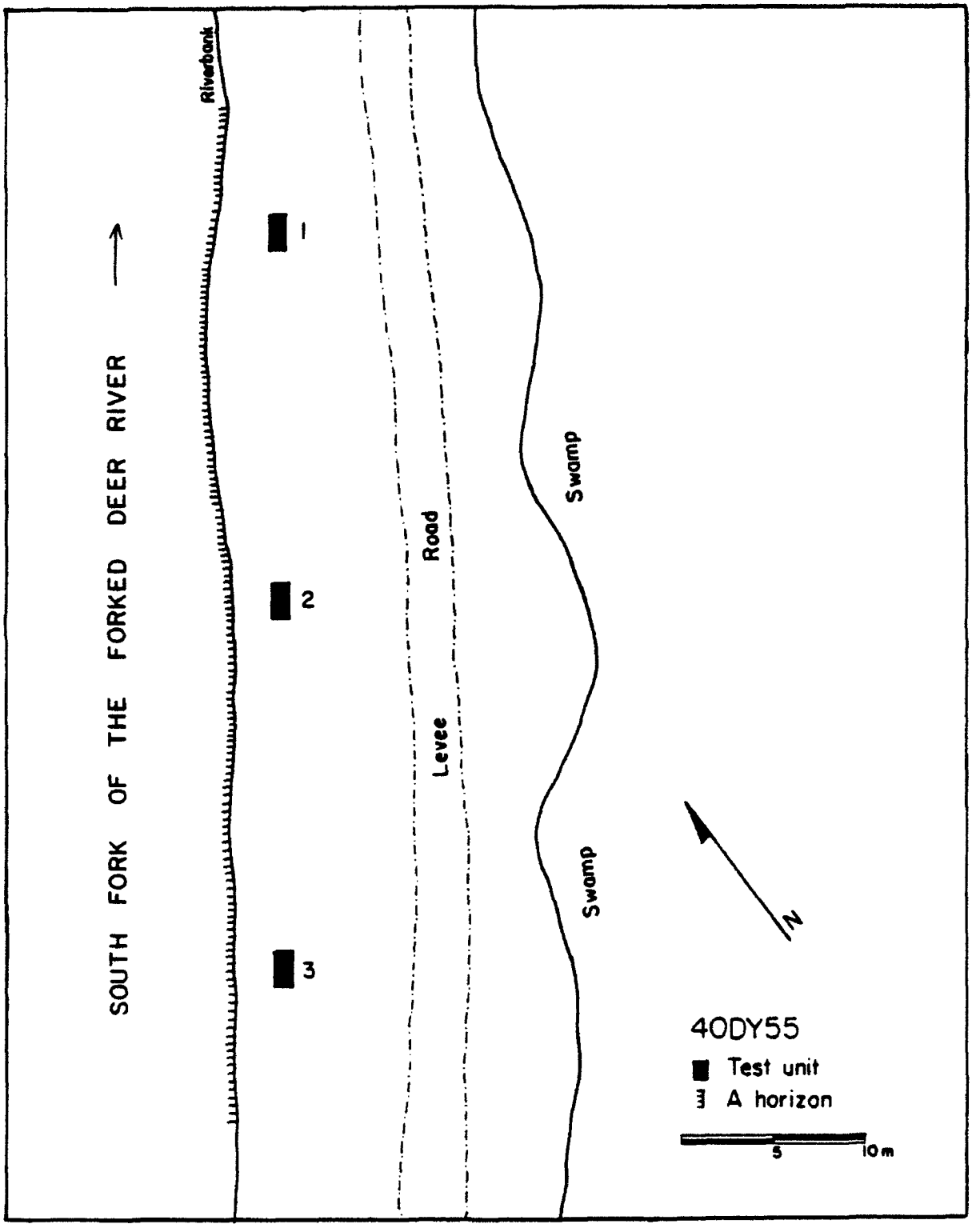

Figure 16. Location of test units excavated at 40DY55.

Table 9. Artifacts Recovered from 40DY55.

	West Riverbank Profile	East Riverbank Profile	Test Unit 1 Level 1	Test Unit 1 Level 2	Test Unit 2 Level 1	Test Unit 2 Level 2	Test Unit 3 Level 1	Test Unit 3 Level 2	Total
Ceramics									
Clay tempered plain	8								8
Clay tempered residual	2								2
Clay/sand tempered residual							1		1
Lithics									
Fitted mano		1							1
Utilized retouched flakes					1		1		2
Flat flake	1	3			3	3	10		20
Bifacial thinning flake		2	1		4	3	3		13
Shatter		3			12	11	12		38
Decortication					1		2		3
Core fragment		1							1
Others									
Thermally fractured chert							1		
	11	10	1	0	21	17	30	0	90

Table 10. Raw Material Analysis (40DY55).

Lithic Assemblage	Local Chert	Fort Payne/ Camden	Unidentified Chert	Fs/s	Total
Bifacial tools					
Unifacial tools	2				2
Pitted mano				1	1
Flakes	69	5			74
Cores	1				1
	72	5		1	78

The test excavations indicate that the northern portion of the site had the least amount of cultural remains. Only one flake was recovered from this test unit compared to 38 artifacts recovered from Test Unit 2 and 30 artifacts from Test Unit 3. All artifacts were recovered from the first 10 cm of the buried A horizon except a few recovered from the second ten cm level of Test Unit 2.

A sparse amount of cultural remains was recovered from the eastern portion of 40DY55. Intact features were not encountered in the riverbank profiles or the test units. Sheet midden was not present. These investigations indicate that the site has limited research potential. Additional archaeological work on the east riverbank portion of this site is not necessary.

40DY56

This site was discovered during the riverbank survey conducted in August 1984. The site is located on an alluvial terrace that was bisected by the ca. 1915 channelization of the South Fork of the Forked Deer River. Prehistoric cultural remains were found buried beneath 1.4 m of 20th century dredge deposits. Prehistoric remains were recovered from a buried A horizon along both sides of the riverbank. The ca. 1915 channelization cut through the center of the site. The old river channel is located 250 feet to the west.

The work conducted in August focused on the west side of the channel (Figure 17) because the profile was not as slumped as the east river channel profile. A buried A horizon measuring 128 meters long was defined on the west side of the riverbank. A feature with burned clay and charcoal was recorded along this exposure. A cursory examination of the east side of the riverbank confirmed the presence of a buried A horizon containing cultural material (i.e., 1 retouched/utilized flake and 1 shatter).

The Memphis District, Corps of Engineers' rechannelization project will impact the east riverbank side of this site. Additional work was

Figure. 17. View of west riverbank, 40DY56.

conducted in June 1985, to define the site boundaries and to assess site significance. The exposed portions of the eastern riverbank were profiled to define the limits of the buried A horizon and three 1 x 4 meter test units were excavated. A discontinuous buried A horizon measuring 76 meters long was defined. The A horizon was buried beneath .95-1.30 meters of 20th century dredge deposits. The test units were excavated at 20 meter intervals and were placed approximately six meters from the riverbank (Figure 18). A portion of each test unit was excavated to a depth of ca. 2 meters. Cultural material was not recovered from the riverbank or the test units and a buried A horizon was never found in the test units. These findings indicate that an intact A horizon does not extend six meters to the east of the riverbank.

A total of 23 artifacts was recovered from the riverbank profiles and the disturbed levee deposits (Table 11). The artifacts recovered from the investigations indicate the presence of a Transitional (4 baked clay object fragments) and a Woodland component (4 clay tempered residual and 1 clay tempered residual sherd). Other artifacts include 1 thin biface/ knife fragment, 1 chert hammerstone, 2 retouched/utilized flakes and 8 lithic debitage. The majority of raw material recovered from this site is local chert (Table 12).

Table 12. Raw Material Analysis (40DY56).

Lithic assemblage	Local chert	Fort Payne/ Camden	Unidentified Chert	Fs/s	Total
Bifacial tools	1				1
Unifacial tools	1	1			2
Hammerstones	1				1
Flakes	6				6
Cores	2				2
	11	1			12

The feature recorded on the west side of the riverbank is a shallow globular pit. The feature is .35 cm in diameter and .25 cm deep. Extensive in situ burning is present, suggesting that this feature functioned as a hearth or small earth oven. A dark organically stained area 3 meters long and 5 cm thick, and two possible postholes are associated with this feature.

These investigations indicate that the Memphis District, Corps of Engineers' rechannelization project will not adversely affect the east riverbank portion of 40DY56. Additional archaeological investigations at this portion of the site are not necessary.

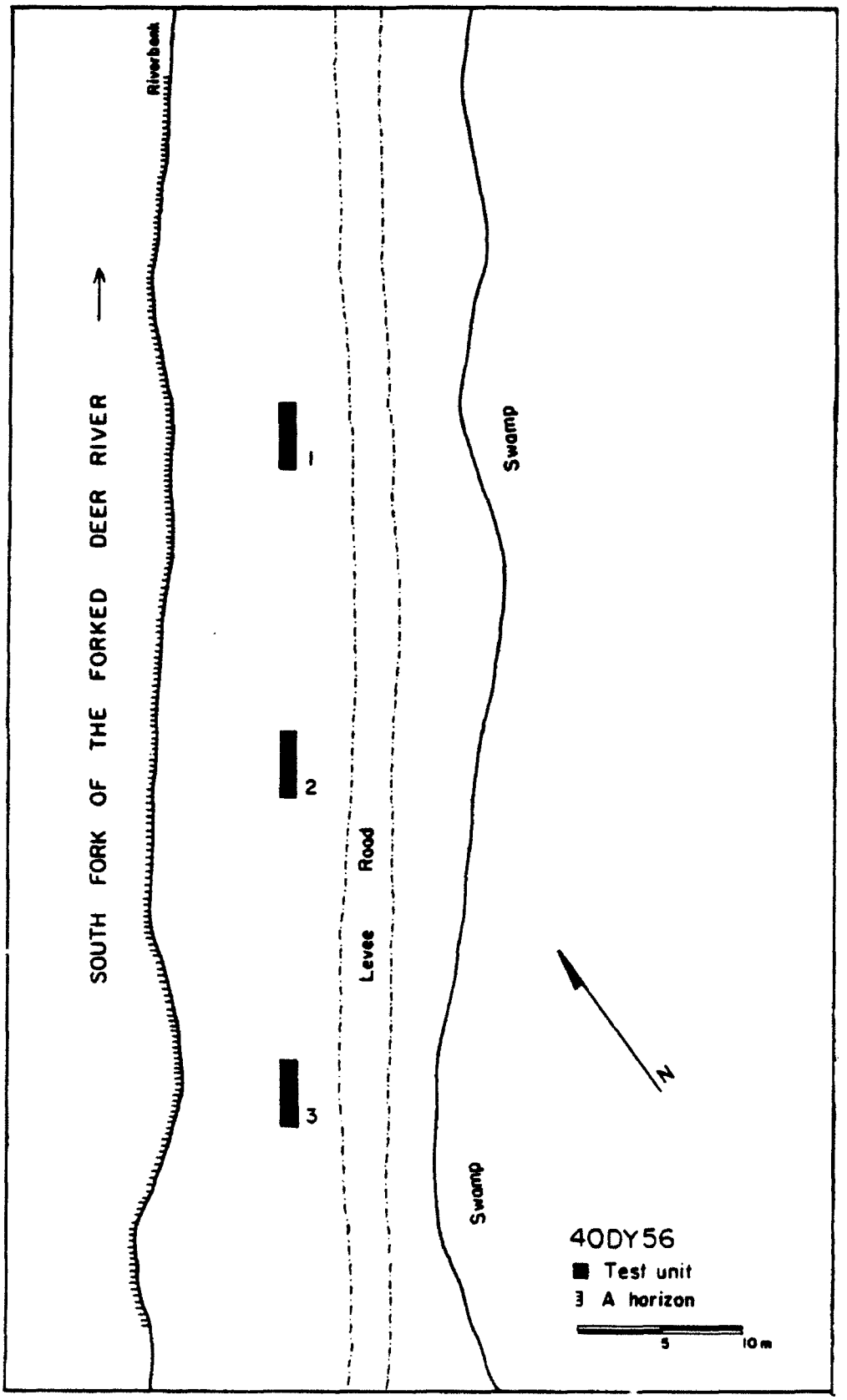

Figure 18. Location of test units excavated at 40DY56.

Table 11. Artifacts Recovered from 40DY56.

	West Riverbank Profile	West Riverbank Levee	East Riverbank Profile	East Riverbank Levee	Total
Ceramics					
Clay tempered residual		1			1
Clay/sand tempered residual	1	3			4
Baked clay Objects					
Fragments	2	2			4
Lithics					
Thin biface/ knife	1				1
Retouched/ utilized flakes		1	1		2
Flat flakes	1			1	2
Shatter	1	2	1		4
Core fragments	1	1			2
Hammerstone	1				1
Others					
Fs/s	2 (36.8g)				2
	10	10	2	1	23

40DY57

This site was recorded during the survey of the 4.4 mile section of the Fowlkes Item, Parcel 1. The site is located adjacent to the South Fork of the Forked Deer River and is situated at the base of a bluff. The site was found in a freshly bulldozed road cut. Cultural material, including charcoal and burnt clay, was present in an A horizon buried beneath 50 cm of greyish clay deposits. The cultural deposit was 60 cm thick. A small sample of artifacts was recovered from the disturbed area. The artifact inventory includes 1 sand/clay tempered plain sherd, 1 thin biface/knife, 2 flakes (1 core trimming and 1 shatter) and two fragments of thermally fractured chert (85 grams). The thin biface/knife has a beveled base and has been reworked along the edges. The thin biface/knife is made from an unidentified chert and the two flakes are made from local chert.

The Memphis District, Corps of Engineers' rechannelization project will not impact the site. The downstream 4.4 mile section of the survey area (Fowlkes Item, Parcel 1) was previously channelized in the early 1970s. No further work at this site is necessary.

Deep Testing

Geomorphic data and previously recorded archaeological data was used to select high probability areas for the occurrence of buried cultural deposits. The data indicate a correlation between terrace remnants and archaeological sites. High, moderate and low probability areas for the occurrence of buried archaeological sites were delineated by the project geomorphologist. A detailed discussion of the rational behind the selection of the high probability areas is contained in the geomorphic section of this report.

Nine high probability areas were identified. Backhoe trenches were excavated in four of the high probability areas. The other five high probability areas were not tested because of access problems. The presence of swamps, wooded areas and drainage ditches prevented backhoe access to three high probability areas. Access to the two remaining high probability areas was not obtained because landowners could not be contacted.

A John Deere 310-A backhoe with a one foot wide bucket was used to excavate eight backhoe trenches. The backhoe trenches were approximately 10 meters long and 1.5 meters wide. The length of the backhoe trenches provided a sufficient exposure to examine the stratigraphy and determine the presence of any archaeological remains. The depths of the trenches varied from 2.3 to 3.2 meters. Backhoe trenches were not excavated to greater depths once the gley zone or water table was encountered. A two meter section of seven of the backhoe trenches was excavated to greater depths. This procedure enabled the acquisition of additional geomorphic data while maintaining a stable and safe profile.

Cultural material was recovered from four of the backhoe trenches and a radiocarbon date was obtained from one trench. The following section of the report summarizes the findings from these five trenches.

Backhoe Trench 1

This trench was excavated on the east bank of the active channel of the South Fork of the Forked Deer River. Two pieces of modern plastic were recovered from the west profile. These two items were buried beneath .65 and .3 meters of recent dredge deposits. They occur in the 2C1 and 2C3 soil horizons, both of which are silt loams.

Backhoe Trench 3

This backhoe trench was excavated on the east bank of the South Fork of the Forked Deer River approximately 45 meters south of the active channel and 20 meters north of 40DY54. One piece of iron wire attached to a fence post was found in the east profile. This historic artifact was buried beneath 1.5 meters of deposits. The artifact was found in the 2Ab soil horizon, a dark brown silty clay.

Backhoe Trench 4

This backhoe trench was excavated on the east bank of the South Fork of the Forked Deer River approximately 70 meters east of the active channel. The trench was excavated in the vicinity of a terrace remnant that is situated outside of the right-of-way. One historic artifact, a wire nail, was recovered from the uppermost soil horizon (Ap/C). Prehistoric cultural remains, including two sherds, charcoal and burnt clay were recovered from the north profile. The prehistoric remains occurred .4 to 1 meter beneath the surface in the Bwb1 soil horizon, a yellow brown silt loam. The two sherds date to the Woodland period (1 sand tempered residual and 1 clay tempered residual sherd).

Backhoe Trench 5

This backhoe trench was excavated on the east bank of the South Fork of the Forked Deer River approximately 50 meters south of Backhoe Trench 4. A charcoal sample was obtained from the north profile at a depth of 1.5 meters below the surface. The charcoal occurred in the 3Ab soil horizon, a grayish brown clay, which is interpreted as the floodplain soil developed prior to large scale agricultural activities. The date of the sample was modern, within 120 years B.P (1950).

Backhoe Trench 8

This trench was excavated on the east bank of the South Fork of the Forked Deer River approximately 50 meters east of the active channel. Backhoe Trench 8 was excavated in an uncultivated area adjacent to 40CT10. Seven historic artifacts and one prehistoric artifact were recovered from the east profile. The artifacts include 1 Bristol glazed stoneware, 1 clear glass, 3 strands of barbed wire, 1 wire nail shank, 1 corroded nail shank and one thermally altered chert. The artifacts occurred .2 to .5 meters beneath the ground surface. Most of the artifacts occurred in the Ap^2 soil horizon, a dark yellow brown silt loam. Additional artifacts were recovered from the backdirt pile. These artifacts include one 6 1/2

ounce Dr. Pepper bottle, 1 bipitted hammerstone (sandstone), 1 baked clay object fragment, 1 clay tempered residual sherd, 1 retouched flake and one unmodified flake (shatter). The cultural remains recovered from the backhoe trench represent slopewash from 40CT10.

Loci

Two loci were recorded. Loci are occurrences of cultural material that do not warrant a site designation. Occurrences of less than three artifacts and occurrences of redeposited artifacts were designated as loci.

Locus 1

This locus comprises two Woodland sherds. These artifacts were recovered from the north wall of Backhoe Trench 4. The context of those artifacts is discussed in the preceeding deep testing section of this report.

Locus 2

This locus consists of redeposited cultural material recovered from the levee located upstream from 40DY56. Middle Archaic, Transitional and Woodland components have been identified at this locus. The assemblage includes 1 pp/k fragment similar to the Benton type, 1 biconical baked clay object, 1 clay tempered residual sherd, 1 clay/sand tempered residual sherd, 5 flat flakes, 1 decortication, 5 shatter, 2 core fragments and 2 random flake cores. Additional archaeological work on the east riverbank portion of this site is not necessary.

VIII. GEOMORPHIC INVESTIGATIONS by Michael L. Barnhardt

Introduction

The South Fork of the Forked Deer River, located in northwest Tennessee, is one of many river systems undergoing extensive sedimentation due to sheetwash and gully erosion from upland agricultural areas. The area is dominated by thick sheets of wind-blown silt (loess) which is easily eroded by running water when inadequate vegetative cover is available. When the upland loess is eroded, a considerable amount ultimately is redeposited on the lower bluff slopes or the neighboring floodplains. Like many of its drainage counterparts, the South Fork of the Forked Deer River has witnessed a considerable amount of sedimentation in and near its channel during the post-European agricultural period. Numerous river channel cutoffs, oxbow lakes, and infilled sloughs and chutes attest to the river's instability; a condition apparently due to the overloading of the system with silts and fine sands. A comparison of the Lauderdale-Dyer-Crockett county boundaries with the position of the river prior to channelization reveals several channel alterations since the boundaries were established. It is possible that these changes were, in part, initiated, or enhanced, by the large-scale removal of upland and

bottomland forests for agricultural purposes. Once exposed to increased raindrop impact, overland flow, and sheetwash, the loessial parent materials in which the soil has developed soon begin to gully, a condition that has yet to be adequately controlled. Evidence such as buried fence lines, infilled sloughs, buried soils, and buried historical artifacts indicate that much of the floodplain has been subjected to recent (historical) sedimentation of variable thickness. Whether the magnitude and spatial extent of the sedimentation has been maintained throughout prehistoric times is uncertain, given the limited scope of this project. However, regardless of the duration of the sedimentation in this drainage, many, if not all, prehistoric sites in this area can be expected to have been subjected to potential burial. This fact alone implies that in order to preserve an artifact's surface position, the geomorphic or topographic situation must be such that it has been neither severely eroded nor extensively buried, a proposition with limited probability in the study area. Developing a field search model to locate such potential surface and subsurface geomorphic conditions is critical if the most optimum environments are to be found and the most efficient use of field time is to be accomplished. Once the geomorphic environment has been examined and the sedimentation pattern identified, the probabilities for finding surface archaeological materials can be determined.

Field Search Model

The model developed for this project incorporates river channel changes and elevation data derived from a number of U.S. Geological Survey topographic (1935, 1939, 1952, 1981) and Corps of Engineers maps (1907), U.S.D.A. aerial photographs (1956, 1960), soil series maps and profile information (U.S.D.A. 1965), and geomorphic data on river and lacustrine terraces (Saucier n.d.). An analysis of these records reveals significant information regarding the field detection of terraces, important soil properties, and former river channels and when combined with the locations of known archaeological sites, allows a variety of relationships to be drawn regarding the optimal conditions for locating buried cultural materials.

Terrace Remnant Location

Limited geomorphic research has been conducted in the study area that is specific to the goals of this project. One exception is the work of Saucier (n.d.) in which he examined topographic maps and aerial photography in an examination of terraces along several West Tennessee tributaries. He noted the presence of four terraces (he informally called them Finley, Hatchie, Humboldt, and Henderson, from lowest and youngest to highest and oldest, respectively) of which the lowest terrace (Finley) occurs sporadically throughout the study area. Saucier interprets the Finley terrace as being part lacustrine-part fluvial. This terrace is found at an elevation near 32 m (270 ft) and is expressed best along the eastern side (right bank) of the river. There appear to be small terrace remnants extending westward from the main terrace which exhibit a scalloped pattern similar to that mentioned by Saucier. These remnants are generally near or just below 82 m in elevation and stand 1 to 3 m above the active floodplain. Due to their elevation, they would be less likely to be inundated during minor floods than would the lower floodplain areas.

Soil-Geomorphic Relationships

Since soils are very dependent upon topographic position for their drainage characteristics, the soil pattern within the study area was examined to determine whether any significant relationships existed between soils and landforms, specifically, terraces. Such a relationship exists in the form of Alfisols (Fragiudalfs, well-developed soils with a fragipan horizon at depth) developing upon the terraces and Inceptisols (Haplaquepts, minimally developed soils) being found on the active floodplain. The Fragiudalfs found within the study area are the Calloway, Grenada, and Loring series while the Haplaquepts are the Falaya and Waverly series. The soils with fragipans are easily located and detected in the field because the fragipan is a dense, brittle horizon often characterized by extensive vertical channels of white to gray silt and very fine sand. Soil probes are difficult to drive through this layer. The floodplain Inceptisols are both poorly or somewhat poorly drained and exhibit extensive greying (grey colors) within one meter of the soil surface. Once again, they are easily discriminated in the field based on these characteristics.

Historic and Archaeological Information

Recent changes in the river channel were determined from a review of the Geological Survey, Corps of Engineers, and U.S.D.A. maps and aerial photographs, and compared with the county boundaries. Any discrepancies would be related to river channel changes (natural or human-related) since the boundaries were established in 1823 (Dyer), 1836 (Lauderdale), and 1873 (Crockett). This information is useful in locating the former position of the natural channel: the one more likely to have been active during prehistoric times. Sloughs and chutes that are no longer active were noted and known archaeological sites were plotted on a map to determine whether any spatial relationship exists between the geomorphic and archaeological information. All previously located sites are situated on terraces or apparent terrace remnants.

Application of the Field Model

Incorporating the available information into a working model involved determining the areas with the highest probability of finding buried archaeological sites. First, since there is an extremely close relationship between the occurrence of Fragiudalfs and terrace remnants, the areas with these soils were determined from the soil survey for Dyer County (Brown et al. 1965). Second, the spatial distribution of known archaeological sites also suggested that terrace remnants were high probability areas. Third, assuming that humans have exhibited a preference for riverine environments in the past, areas along the natural river channel were included as high probability areas. Fourth, since the study area was along a line parallel to the dredged channel of the river rather than along the natural channel of the river, only those areas where all these factors coincided with the dredge channel were involved in the search.

Summarized, the model states that areas with fragipan soils, near the old natural river channel, and within the dredge channel path are considered high probability areas. The presence of soils with fragipans (i.e., terrace remnants) is considered to be a more important variable

than location near the natural channel because the known archaeological sites are preferentially related to the terrace variable rather than the river position variable. Also, the natural river channel as indicated on the maps is most likely not the identical channel present at the time of prehistoric occupation although it may be quite close, especially if the river system was essentially stable until historic settlement in the region. An additional complicating factor is the dredge channel. Since it is of recent construction, no humans living in the area prior to its construction would have interacted with it as a food or transportation mechanism.

Consequently, the only areas along the dredge channel that can be considered as high probability are where by chance the dredge channel is cut close to terrace remnants and old channel segments. This decreases considerably the number of high probability areas while increasing the number of moderate and low probability areas. Moderate probability areas occur where either a terrace remnant or an old channel segment are near the dredge channel. In still other locations, both the terrace and old river channel variables are absent producing a low probability area. These three levels of probabilities were mapped on 7.5 minute topographic maps (Figure 19) and a series of locations were delineated for field testing with soil probes and backhoe trenches. Since the dredge channel often cut through new parts of the floodplain, rather than deepening the old channel, it can be considered to be a large trench with a length of 16 km. For this reason, a boat survey was conducted to study the stratigraphy and inspect the channel walls for archaeological sites.

Field Investigations

Geomorphic investigations were conducted in the 4.6 mile long Fowlkes Item, Parcel 2 and the 6.2 mile long Halls Item. The investigations included soil probe work, deep testing and a survey of the riverbanks by boat.

Soil Probe Field Work

In May of 1984 soil probes were taken to sample the subsurface stratigraphy near archaeological sites 40CT10, 40DY54, and 40DY55. The sampling was accomplished using a 3/4" Oakfield soil punch with a 15" open-face sampling tube. The samples were taken in an effort to specify possible locations for backhoe trench excavations.

40CT10

A series of probes was taken to carefully delineate the boundaries of the site. Some surface runoff and erosion was evident and it was necessary to determine the amount of erosion that had taken place and where the sediment had been deposited. Probes were taken on all sides of the site to locate any possible areas of recent overbank sedimentation. The soil series present on the site is the Calloway silt loam, a soil that displays a well-developed fragipan. This fragipan is easily identified by its compactness in the field and an increase in mottling (gray colors indicative of poor drainage) due to the perching of water on top of the fragipan. With these factors in mind the probing was conducted and the site mapped as to the extent of the fragipan, and therefore, the extent

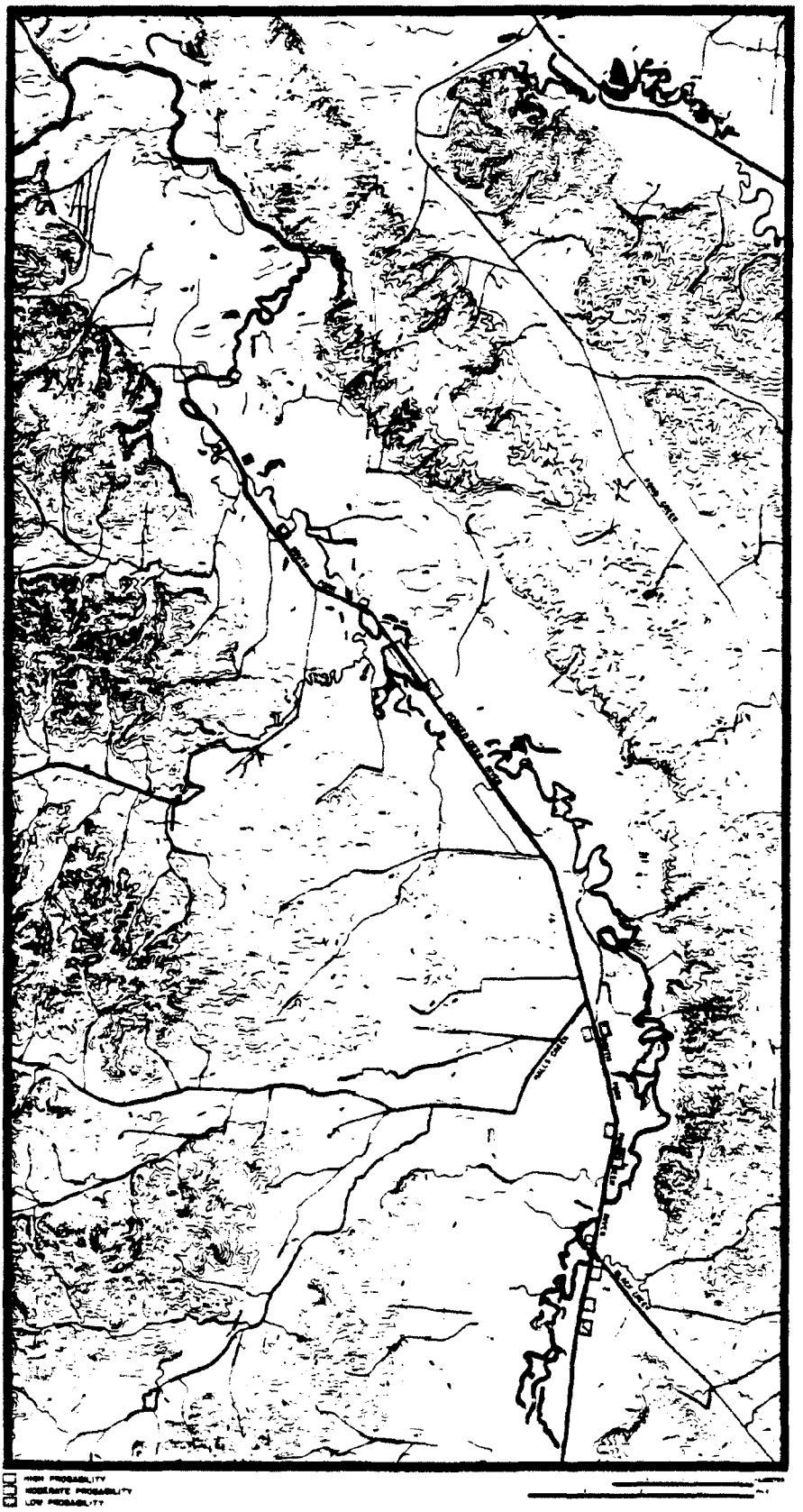

Figure 19. Location of probability areas for buried archaeological sites.

of the terrace remnant upon which the soil had developed. The depth of the probing was to the top of the fragipan or about 0.6 to 1.0 meter.

40DY54

Soil probes were taken around this site to determine whether the area was a terrace remnant and to classify the soil series. The Calloway silt loam is developed at the site and it is progressively buried to the north as the river channel is approached. Gradually, the newer sediments overlying this soil become thick enough to bury the Calloway profile and to have another soil develop within those sediments. This soil, the Falaya silt loam, is recognized by its shallow profile and minimal development. The upper 10 cm constitute the bulk of the soil profile and beneath this depth, the sediments retain their lamination character. These probes were used to locate the positioning of backhoe trenches 2 and 3 and to define the limits of the terrace remnant.

Deep Testing

Backhoe Trench 1 (Figures 20 and 21)

This is a north-south trench cut into the right levee of a channel that was apparently dredged in the early 1970s. Running perpendicular to the active channel, the immediate area is not being cultivated and is covered by small trees and grasses. Soil development is minimal, lacking even an accumulation of organics except in the uppermost 2-3 cm. Munsell Soil Colors are for moist broken samples and depths are in centimeters. Soil nomenclature and horizon designations are used.

AC 0-2 cm; yellowish brown and yellow (10YR 5/6, 8/6) silt loam; weak very fine granular structure; some very fine laminations; iron stains along root channels; clear smooth boundary.

C 2-31 cm; yellow (10YR 8/6) silt loam; massive; thin to medium laminations; some cross-bedding that dips toward river; abrupt smooth boundary.

2C1 31-44; yellowish brown (10YR 5/4) silt loam; pale brown (10YR 6/2) undulating laminations; massive; piece of plastic near middle; clear smooth boundary.

2C2 44-53; yellowish brown (10YR 5/4) silt loam; massive; root zone at bottom of unit; clear smooth boundary.

2C3 53-64; brownish yellow (10YR 6/6) silt loam; iron stains common; merges with 2C1 and 2C2 toward river; abrupt smooth boundary.

3C4 64-74; yellowish brown (10YR 5/4) silt loam; massive; iron stains common; some oxidation rings around roots; horizontal except near river where is dips toward river; abrupt smooth boundary.

Figure 20. Recording of Backhoe Trench 1.

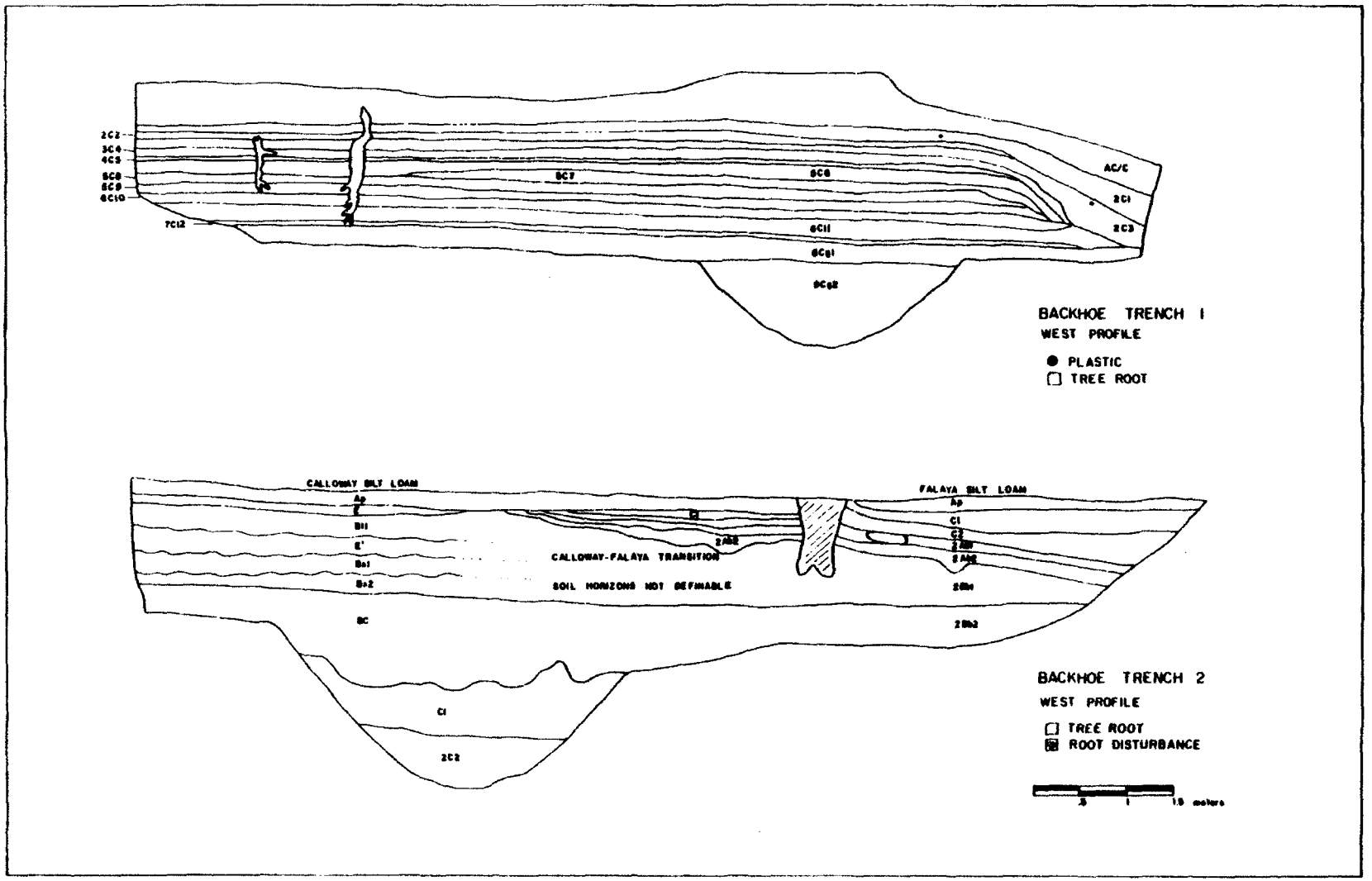

Figure 21. Backhoe trenches 1 and 2, profiles.

4C5 74-77; brown to dark brown (10YR 4/3) medium sand; single grain; not laminated; pinches-out near river; does not dip toward river; abrupt smooth boundary.

5C6 77-90; light olive brown (2.5Y 5/6) silt loam; massive; thin irregular discontinuous fine sand lenses; few rootlets, common iron stains; abrupt smooth boundary.

5C7 90-101; yellowish brown (10YR 5/4) silt loam; massive; thin discontinuous coarse sand lenses; common medium and coarse sand inclusions; occasionally laminated; pinches-out in both horizontal directions in trench; abrupt smooth boundary.

5C8 101-115; yellowish brown (10YR5/4) loam; massive; yellowish brown (10YR 5/6, 5/8) mottles along root channels; common thin 2-3 mm medium sand lenses; abrupt smooth boundary.

5C9 115-125; brown (10YR 5/3) silt loam; massive; common fine sand not laminated; abrupt smooth boundary.

6C10 125-142; brownish yellow (10YR 6/6) loam/sandy loam; finely laminated; abrupt smooth boundary.

6C11 142-151; brownish yellow (10YR 6/6) loam; thin discontinuous light brownish gray and light gray (10YR 6/2, 71) medium and fine sand lenses; common yellow (10YR 7/6) iron stains; abrupt smooth boundary.

7C12 151-156; brownish yellow (10YR 6/6), brown (10YR 5/3), and dark yellowish brown (10YR 4/4) sandy loam; individual 1-2 mm lenses; many medium and fine quartz sand grains; undulating laminations dipping toward river; abrupt smooth boundary.

8Cg1 156-180; olive brown (2.5Y 4/4) silty clay loam; common dark brown (7.5YR 3/2) iron stains; common vertical root channels with very fine sand; no laminations; clear smooth boundary.

9Cg2 180-200; olive gray (5Y 4/2) silty clay loam/ silty clay; massive; thin medium and fine sand lenses in upper portion of horizon; horizon becomes finer with depth; at upper contact horizontally-positioned leaves and a piece of wood occur.

Interpretation:

Since this trench is located adjacent to the active channel of the South Fork of the Forked Deer River, it is subjected to seasonal overbank sedimentation. The uppermost sediment in which the AC and C horizons have developed are laminated silts and very fine sands deposited within the last two decades. Horizons 2C1-2C3 occur within the dredge material deposited during the channel construction phase of the early 1970s. Some pieces of plastic were found within this sediment and the unit overlaps the underlying sediment on the river side. Soil horizons 3C4 through 5C9

appear to have developed in sediments of increasing sand content. This increase in sand content may be related to a period of expanded cultivation within the drainage during the late 19th century or, more likely, the post-dredging of the main channel of the river in the early part of the 20th century. The increased velocity of the channel may have flushed these fine sands downstream and since this area had not yet been dredged, a considerable amount of sedimentation could have occurred. Soil horizons 6C10 and 6C11 occur in sediment that may represent a post-European influx. These sediments may represent a readjustment period for the floodplain due to the increased sediment flux through the drainage system. The sediment associated with horizons 7C12 and 8Cg1 is finer-textured than the overlying sediment and represents a lower energy phase similar to the backswamp conditions common in this area prior to large-scale clearing for cultivation. Extensive old root channels, higher clay content, wood fragments and leaves are evidence for this bottomland swamp. Soil horizon 9Cg2 is actually developed within a unit that is increasingly finer in texture with depth. These sediments are faintly laminated in places and may be related to the lacustrine conditions mentioned by Saucier (n.d.). These sediments may represent the period of time when water was impounded within this valley. The environmental history of this area as interpreted from Backhoe Trench 1 is lake-backswamp conditions-floodplain expansion and development-near levee position-levee position (current).

Backhoe Trench 2 (Figure 21)

This trench began a few meters north of site 40DY54 and ran north-south for ten meters. The area is somewhat poorly drained but becomes poorer to the north in the trench. Both the Calloway and the Falaya soils are exposed in this trench. The slope is 0-1% and the parent materials are loess at the south end and reworked silts (alluvium) at the north end. A buried soil occurs at this site. Munsell notations are for moist broken faces and depths are in centimeters.

Ap 0-15 cm; dark yellowish brown (10YR 4/4) silt loam; moderate fine and very fine granular structure; friable to very friable; common rootlets; abrupt smooth boundary.

E 15-30; yellowish brown (10YR 5/6) silt loam; moderate fine and medium subangular blocky structure; common weak fine platy structure throughout horizon; friable; clear smooth boundary.

Bt1 30-53; yellowish brown (10YR 5/8) silty clay loam; few thin discontinuous brown and dark brown (7.5YR 4/4) clay coatings on faces of peds; moderate medium subangular blocky structure; friable; sticky and plastic when wet; clear smooth boundary.

E' 53-69; yellowish brown (10YR 5/8) silty clay loam; few fine faint strong brown (7.5YR 5/8) mottles; few thin discontinuous brown and dark brown clay coatings on faces of peds; common light yellowish brown (10YR 6/4) silt coatings along root channels; weak and moderate medium subangular blocky structure; friable; slightly sticky and plastic when wet; clear wavy boundary.

Bx1 69-89; yellowish brown (10YR 5/6, 5/8) silty clay loam; common medium distinct strong brown mottles; thin continuous brown (7.5YR 4/4) silt coatings along root channels; many medium prominent yellowish red (5YR 5/8) mottles in upper part of horizon; common silty inclusions; silt and very fine sand along root channels; common fine black nodules (Mn); silt and very fine sand occurring in vertical channels 5-10 mm wide; moderate fine and medium subangular blocky structure with few weak fine and medium prismatic structure areas in upper part of horizon; friable; gradual wavy boundary.

Bx2 89-102; dark brown (7.5YR 4/4) silt loam; few fine prominent yellowish red (5YR 5/8) mottles; light yellowish brown (10YR 6/4) silt coatings along root channels and in vertical channels; few dark yellowish brown clay coatings along root channels; silt and very fine sand along root channels; moderate medium prismatic separating to moderate medium subangular blocky structure; friable; clear wavy boundary.

BC 102-152; dark brown (7.5YR 4/4) silt loam; common fine prominent brownish yellow (10YR 6/8) and common medium prominent strong brown (7.5YR 5/6) mottles; light yellowish brown (10YR 6/4) silt coatings in root channels; moderate medium subangular blocky structure; friable; clear wavy boundary.

C1 152-208; light olive brown (2.5Y 5/4) silt loam; common medium prominent yellowish red (5YR 5/8) mottles; few fine black concretions (Mn); massive; friable; clear wavy boundary.

2C2 208-330; light gray and gray (5Y 6/1) silt loam; many coarse prominent yellowish red (5YR 4/6) mottles; common fine calcium carbonate nodules; slight to moderate effervescence; many fine and medium black concretions (Mn); common very fine sand; massive; firm; bottom of profile.

Interpretation:

Backhoe trenches 2 and 3 are separated by only 20 m and are essentially one continuous exposure because surface and subsurface horizons can easily be traced between them. Backhoe Trench 2 begins on the north slope of a terrace remnant and exhibits a thick loess mantle. The soil developed within the loess is the Calloway silt loam, a Glossaquic Fragiudalf. It exhibits a well-developed fragipan that is somewhat brittle and firm. The profile described above occurs at the far south end of the trench where the terrace remnant is best exposed. Moving northward in the trench the Calloway soil is progressively buried such that at the northern end of the trench, the Falaya silt loam, an Aeric Fluvaquent, is developed. The geomorphic surface upon which the Calloway soil has developed is buried at the north end of the trench and is also exposed as a buried surface in Backhoe Trench 3. In its buried condition it is no longer referred

to as the Calloway soil because, by definition, the Calloway is a surface soil. This progressive burial to the north as the river is approached is evidence that the area has undergone substantial burial in recent history. The gradient of the buried soil is slight in Backhoe Trench 2 but increases toward Backhoe Trench 3 such that its position appears to no longer be located on the terrace. The texture of the buried soil is silt loam (20% clay) in the southern part of Backhoe Trench 2 but becomes a silty clay (50% clay) in Backhoe Trench 3. The parent materials for the soil may also be different although the textural difference may have been influenced by backswamp conditions in the area of Backhoe Trench 3. The laminated silts in which the Falaya soil has developed are different than the loess in which the Calloway soil has developed. The floodplain sediments of the Falaya are of recent deposition and appear to be related to a period of rapid floodplain sedimentation. No artifacts would be expected to occur in the Calloway soil since this loess was emplaced prior to human occupation in the area. However, since the silts in which the Falaya soil has developed are of recent origin, it can be expected that artifacts will be preferentially buried in these areas because the geomorphic surfaces upon which the Falaya soil has developed are too young to have been available for aboriginal occupation.

Backhoe Trench 3 (Figure 22)

The Trench was cut about 20 m north of Backhoe Trench 2 and is essentially a continuation of the stratigraphy and soils exposed in Backhoe Trench 2. The parent materials are silty alluvium overlying possible lacustrine silts. The local slope is 0-2% and the drainage is somewhat poorly to poorly drained. The soil series developed here is the Falaya silt loam, an Aeric Fluvaquent. The soil profile is minimally developed and laminated sediments are exposed in the trench. This area was formerly a bottomland forest but is now cultivated in soybeans. Munsell notations are for moist broken faces and depths are in centimeters.

Ap 0-20 cm; dark yellowish brown (10YR 4/4) silt loam; few fine distinct brownish yellow (10YR 6/8) mottles; weak fine granular structure; very friable; abrupt smooth boundary.

C1 20-58; very pale brown (10YR 7/2) and yellowish brown (10YR 5/6) silt loam; laminated; massive; very friable; some krotovina; abrupt smooth boundary.

C2 58-107; very pale brown (10YR 7/2) and yellowish brown (10YR 5/6) silt loam; laminated; many fine and medium prominent yellowish red (5YR 4/6) mottles; massive; very friable; abrupt smooth boundary.

2Ab 107-130; dark brown and brown (7.5YR 4/4) silty clay; many medium prominent red (2.5YR 5/6) mottles; sticky and plastic; variable mottle colors in decomposed organic areas; massive; friable; abrupt smooth boundary.

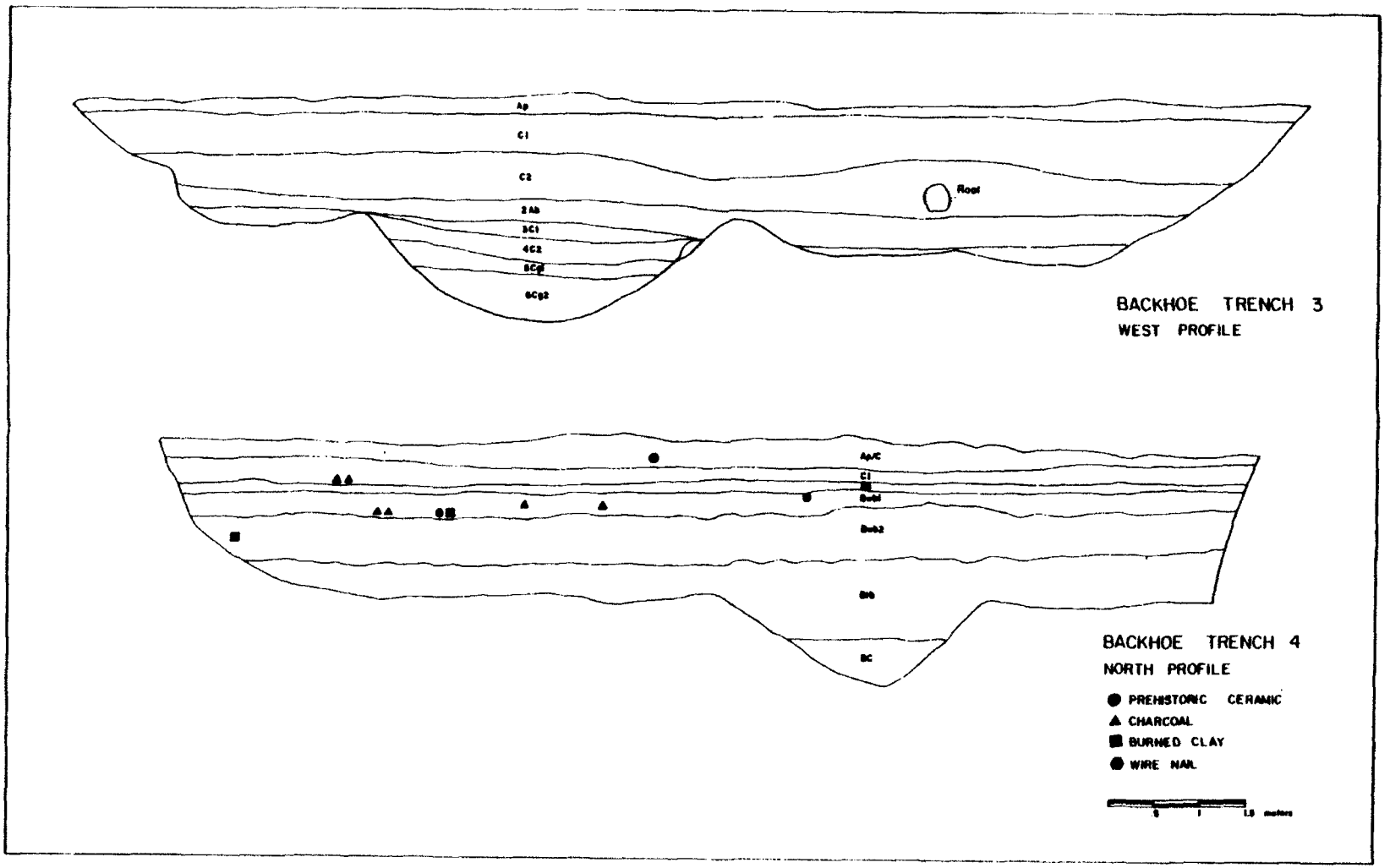

Figure 22. Backhoe trenches 3 and 4, profiles.

3C1 130-142; pale yellow (2.5Y 7/4) loamy sand/sandy loam; discontinuous horizon; many fine prominent strong brown (7.5YR 5/8) mottles; single grain; loose; medium sand common; abrupt smooth boundary.

4C2 142-155; light gray (2.5Y 6.5/0) silty clay loam; many medium prominent red (2.5YR 4/8) mottles; mottles are in areas of highly decomposed organics; massive; friable; abrupt smooth boundary.

5Cg1 155-165; gray and bluish gray (N 5/0; 5B 5/1) clay loam/silty clay loam; olive (5Y 5/4) organic areas; massive; friable; abrupt smooth boundary.

6Cg2 165-185; gray (10YR 6/1) silt loam; many coarse prominent yellowish brown (10YR 5/8) mottles; massive; friable; bottom of profile.

Interpretation:

Backhoe Trench 3 is cut into sediments derived from the erosion of the loess uplands in the drainage basin. These reworked silts were deposited in a bottomland forest under swampy conditions. The uppermost meter of laminated silts are of recent origin and represent an environment conducive to the burial of archaeological sites. The buried soil surface (2Ab) represents the surface available for occupation by humans prior to the advent of the large-scale deposition of silts and fine sands on the floodplain. The presence of metal wire suggests that the burial of the soil (2Ab) is recent and that both historic and prehistoric artifacts may occur on this surface. Any occurrence of prehistoric artifacts on the present surface are most likely associated with some disturbance activity such as dredging because the present surface was not in place until recently. The sediments are sufficiently thick as to preclude current cultivation as a disturbance process. Also, the strongly-laminated nature of these sediments makes disturbed areas easy to identify. The lowermost horizon (6Cg2) may be developed in former lacustrine sediments.

Backhoe Trench 4 (Figure 22)

This trench was cut approximately 80 m north of the river and 60 m south of a prominent terrace remnant. The area represents a transition from terrace to floodplain and, as such, exhibits transitional pedologic and stratigraphic characteristics. The area is generally somewhat poorly drained with 0-1% slopes and no erosion is evident. The parent material for soil development is loess-derived alluvium with some fining of sediments due to backswamp conditions prior to clearing for cultivation The soil developed at this location is the Falaya silt loam which exhibits a thin A/C profile indicative of minimal soil development. However, at 41 cm a buried soil profile is encountered and this profile is similar to the Calloway silt loam that is developed on the nearby terrace remnant. This location has

also been considerably altered by dredging and maintenance activities for the nearby railroad and old U.S. Highway 51 bridges. Munsell notations are for moist broken faces and depths are in centimeters.

Ap/C 0-23 cm; dark yellowish brown (10YR 4/4) silt loam; few fine faint strong brown (7.5YR 5/8) mottles; massive; firm; many brick fragments; abrupt smooth boundary.

C1 23-41; pale brown and brown (10YR 6/3, 4/3) laminated silt loam; reddish yellow (7.5YR 6/8) coatings between laminations; weak medium platy structure; firm; top of horizon has more contorted laminations than lower portion; abrupt smooth boundary.

Ab 41-48; yellowish brown (10YR 5/4) silty clay loam; yellow (10YR 8/6) silt inclusions 2-5 mm in diameter; few fine and medium prominent red (2.5YR 5/8) and dark reddish brown coatings on faces of peds; moderate medium granular and weak fine subangular blocky structure; firm and friable; abrupt smooth boundary;

Bwb1 48-66; pale brown and yellowish brown (10YR 6/3, 5/4) silt loam; common medium prominent yellowish red (5YR 4/8) mottles in upper part of horizon; yellowish brown (10YR 5/8) inclusions in lower part of horizon; thin pale brown (10YR 6/3) coatings on faces of peds; weak fine and very fine subangular blocky structure; friable; extensive earthworm activity; lower boundary appears to be glossic; cultural material near top of horizon; clear wavy and irregular boundary.

Bwb2 66-119; yellowish brown (10YR 5/6) silt loam; thin yellowish brown (10YR 5/8) coatings along root channels; very pale brown (10YR 8/3) silt inclusions; thin discontinuous dark yellowish brown (10YR 4/4) clay coatings on faces of peds; moderate fine subangular blocky structure; friable and firm; gradual wavy boundary.

Btb 119-180; yellowish brown (10YR 5/6) silty clay loam; common fine distinct strong brown (7.5YR 5/8) mottles; thin discontinuous pale brown (10YR 6/3) vertical silt channels; thin continuous dark reddish brown (5YR 3/2) clay coatings on faces of peds; moderate fine and medium prismatic and angular blocky structure; firm; somewhat brittle and compact; gradual smooth boundary.

BC 180-241; pale brown (10YR 6/3) silt loam; common fine and medium distinct brownish yellow (10YR 6/8) and strong brown (7.5YR 5/8) mottles; thin discontinuous brown (7.5YR 5/4) coatings on faces of peds; weak medium angular blocky structure becoming massive with depth; firm; bottom of profile.

Interpretation:

The trench exposed a buried soil that has properties similar to the Calloway silt loam, a soil exhibiting a fragipan and developed mainly on the terrace remnants occurring on the floodplain. The overlying sediment is laminated and contains fragments of building materials such as brick and concrete. The laminations indicate that the area is currently receiving overbank sediment. The buried soil suggests that an extension of the terrace is exposed in the trench and that it is being progressively buried. If a trench were cut north of Backhoe Trench 4, a near-surface or surface position of the buried soil would most likely be found. This location is in an area where the Calloway soil was exposed prior to clearing for cultivation. Once cultivation commenced within the drainage basin, the additional sediment removed from agricultural areas was redeposited on the floodplain burying this area of Calloway soil. Prehistoric cultural material was found near the top of the Bwb1 horizon. The specific soil horizon in which it occurred is not important, rather, the fact that the cultural material was found beneath undisturbed laminated sediments is critical. This suggests that the material was in an undisturbed position on or near the soil surface that was active prior to the extensive floodplain depositional phase that is so widespread in this river basin. As evidenced in backhoe trenches 2 and 3, both historic and prehistoric cultural material may be found on the buried surfaces, but only historic material will be found in the sediment above the buried surfaces because this sediment is of historic origin. Any prehistoric materials found in these sediments will have been emplaced there through disturbance activities such as cultivation or dredging which should be evidenced by the lack of laminated materials.

Backhoe Trench 5 (Figure 23)

This trench was cut about 50 m south of Backhoe Trench 4. The area is somewhat poorly drained on 0-1% slopes. The parent materials in which the soil has developed is loess-derived alluvium over possible lacustrine silts and clays. The Falaya silt loam is developed on the surface but, at depth, two buried soils are exposed which may represent soil surfaces prior to agricultural cultivation in the drainage basin. This trench is slightly lower topographically than Backhoe Trench 4 and is slightly farther from the terrace remnant. The deepest parts of this trench also expose sediments that may be related to the lakes formerly occupying this valley. Munsell notations are for moist broken faces and depths are in centimeters.

Ap1 0-20 cm; yellowish brown (10YR 5/4) silt loam with considerable textural variability; massive; very firm and compact; many brick and other fragments of construction materials; abrupt wavy boundary.

Ap2 20-41; light yellowish brown (10YR 6/4) silt loam with considerable textural variability; few fine faint yellowish red (5YR 5/8) mottles; massive; very firm and compact; many brick and other fragments of construction materials; abrupt wavy and irregular boundary.

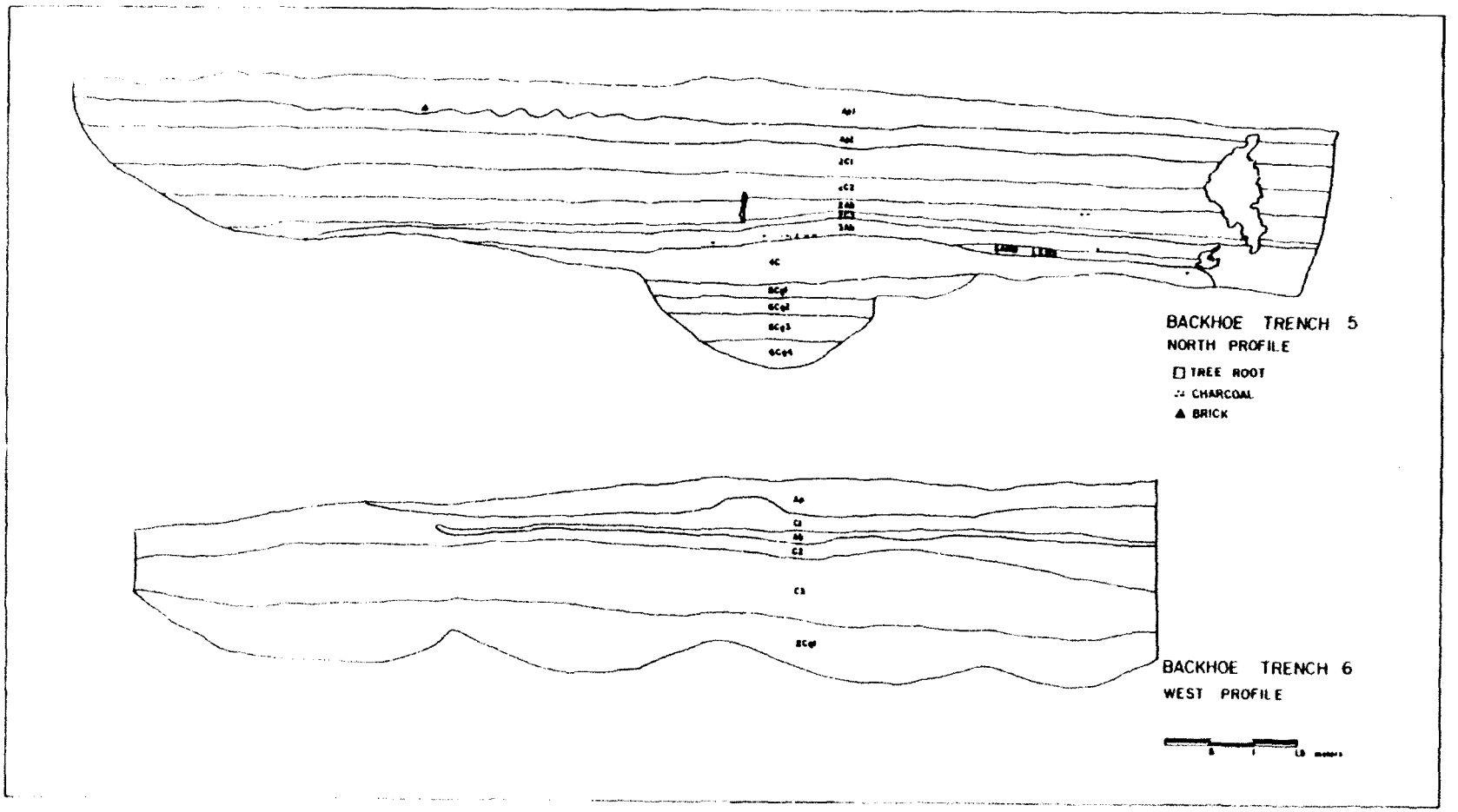

Figure 23. Backhoe trenches 5 and 6, profiles.

2C1 41-76; very pale brown (10YR 7/4) silt loam; very dark grayish brown (10YR 3/2) horizontal bands; common fine distinct brownish yellow (10YR 6/8) mottles; white (10YR 8/2) silt inclusions around root channels; thin brownish yellow (10YR 6/8) coatings around silt inclusions; massive; firm; strongly laminated; abrupt smooth boundary.

2C2 76-107; light brownish gray (10YR 6/2) and dark yellowish brown (10YR 4/4) laminated silt loam and silty clay loam; common medium prominent strong brown (7.5YR 5/8) mottles in 10YR 4/4 laminations; thin discontinuous dark reddish brown (5YR 2/1) organic coatings; massive; friable; clear smooth boundary.

2Ab 107-124; brown (10YR 5/3) silty clay loam; few fine distinct strong brown (7.5YR 5/8) mottles; thin discontinuous dark yellowish brown (10YR 4/4) organic coatings along root channels; weak fine angular blocky structure; friable; vesicular; fecal pellets common; thin organic lenses throughout horizon; clear smooth boundary.

2C3 124-140; yellowish brown (10YR 5/4) silty clay loam; few fine distinct strong brown (7.5YR 5/6) and few fine and medium prominent red (2.5YR 5/8) mottles; thin discontinuous brown (10YR 4/3) organic coatings along root channels; massive; friable; abrupt smooth boundary.

3Ab 140-157; grayish brown (10YR 5/2) clay; few fine distinct yellowish (5YR 4/8) mottles; thin continuous dark reddish brown (2.5YR 2/4) organic coatings on faces of peds; weak very fine platy structure; friable; occasionally massive; charcoal layers; abrupt wavy boundary.

4C 157-170; gray (10YR 6/1) sandy loam/loam; yellowish red (5YR 5/8) organic coatings; weak fine subangular blocky structure; very friable; single grain in places; discontinuous laterally; clear wavy boundary.

5Cg1 170-198; gray and light gray (5Y 6/1) silty clay loam/clay loam; common medium distinct and prominent strong brown (7.5YR 5/8) mottles; massive; friable; gradual wavy boundary.

6Cg2 198-218; gray and light gray (10YR 6/1) silty clay/silty clay loam; few fine distinct strong brown (7.5YR 5/8) mottles; few fine black manganese coatings along rootlets; massive; friable; very plastic; gritty; few fine soft white accumulations; clear wavy boundary.

6Cg3 218-236; light olive gray (5Y 6/2) silty clay/clay loam; few fine distinct olive yellow (5Y 6/6) mottles; massive; friable; not plastic; distinct increase in fine sand; clear wavy boundary.

6Cg4 236-274; gray and light gray (5Y 6/1) clay loam; few fine and medium distinct olive (5Y 5/4) and strong brown (7.5YR 5.6) mottles; few fine black manganese concretions; massive; friable; many fine calcium carbonate nodules; moderate effervescence; plastic; bottom of profile.

Interpretation:

While being close to Backhoe Trench 4, this trench is quite different in that it does not exhibit any buried terrace remnant. Exposed in this trench is evidence for a history of generally low-energy environments and periods of soil burial. The site appears to have been poorly drained, i.e., bottomland swamp, for some time. The two buried soils may represent the prehistoric soil surface and the pre-dredging surface, respectively. The lowermost soil horizon, 3Ab, is believed to represent the poorly-drained floodplain soil developed prior to the advent of large-scale agricultural activities within the drainage basin. A considerable amount of charcoal was found within this soil and samples were collected for radiocarbon dating. The date for the charcoal was modern, i.e., within 120 years B.P. (1950). That would date the material as post-1830 which is not out of line with the interpretation offered here. The charcoal is believed to be burned tree roots, possibly dating to the bottomland forest dominating this area prior to clearing. The second buried soil, 2Ab, may represent the soil that developed within the sediments accumulated on the floodplain in the post-settlement period. That would make the sediment above the 2Ab horizon historical in age, specifically, post-dredge channel (approximately 70 years). Assuming the 3Ab horizon is pre-settlement, over 140 cm of sediment have been deposited at this site since the early 1800s. This would suggest that the probability of finding surface artifacts at this location is quite small. The lowermost sediments exposed in the trench are believed to be lake sediments deposited during various lake stages in post-glacial times. The increasing sand content upward in the sediments in post-lake time may represent a transition to more fluvial conditions and a higher energy environment.

Backhoe Trench 6 (Figures 23 and 24)

This north-south trench is located about 50 m north of the South Fork levee at a point where the river makes an abrupt eastward turn. A seasonally-active oxbow lake is located about 100 m north of the site. The soil is somewhat poorly drained on 0-1% slopes. Parent materials for the soil are silty alluvium (from eroded loess bluffs) over possible lacustrine silts and clays. Taxonomic classification for the soil is either the Falaya or Waverly silt loam; both are Inceptisols. Munsell notations are for moist broken samples and depths are in centimeters.

Ap 0-8 cm; yellowish brown (10YR 5/4) silt loam; moderate fine granular structure; very friable; common fine distinct strong brown (7.5YR 5/8) mottles; few pale brown (10YR 6/3) loamy inclusions throughout horizon; plowed or disturbed during construction of levee and adjacent flood-control structure; clear smooth boundary.

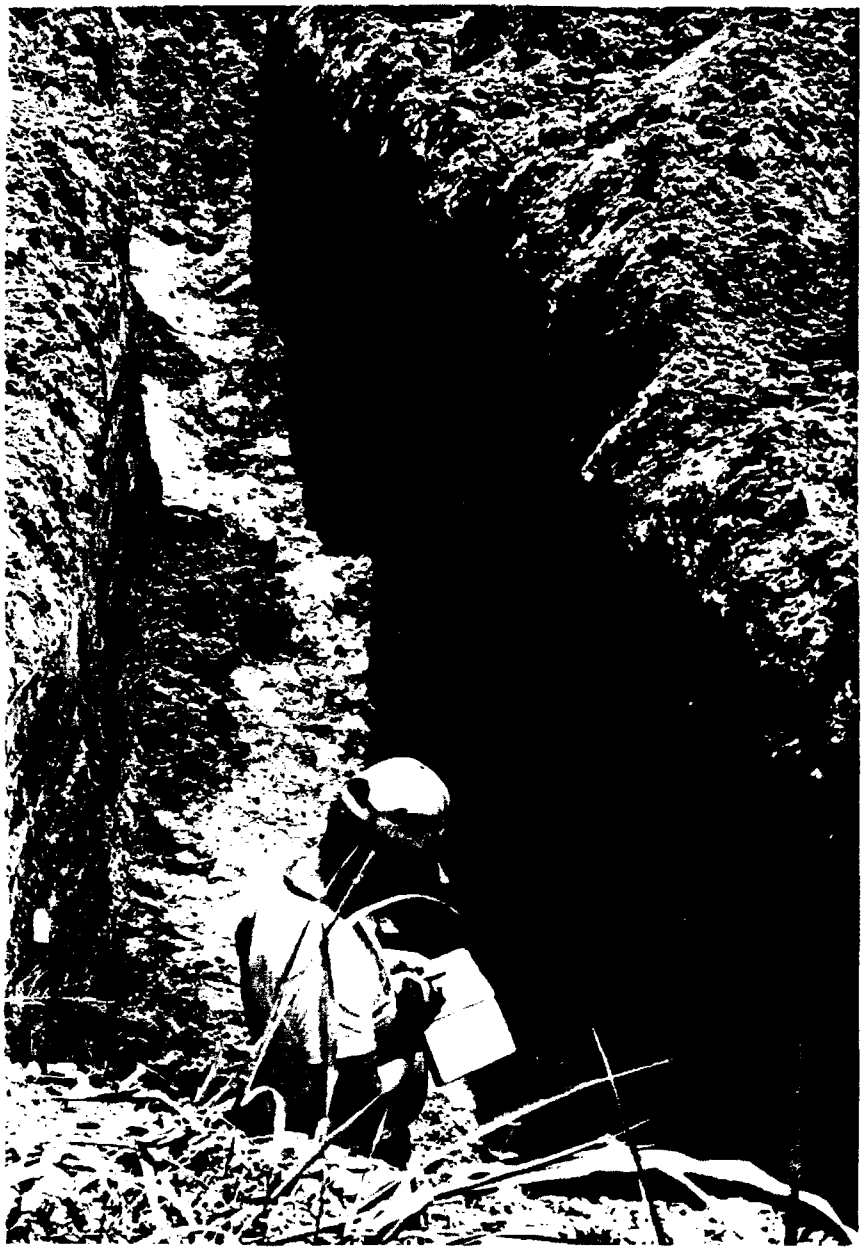

Figure 24. Recording of Backhoe Trench 6.

C1 8-64; pale brown (10YR 6/3) and strong brown (7.5YR 5/6) laminated silt loam; common fine and medium prominent dusky red (2.5YR 3/2) mottles; massive; friable to firm; common black organic lenses, possibly old leaves; some large burned roots; lower portion of unit is lighter color; abrupt wavy boundary.

Ab 64-69; yellowish red (5YR 4/8) silt loam/loam; many coarse distinct dusky red (2.5YR 3/2) mottles, may be coatings also; massive; friable; burned wood, charcoal, oxidized soil common; very wavy irregular oxidized zones; truncated at south end of trench toward river; abrupt wavy boundary.

C2 69-119; yellowish brown (10YR 5/6) silt loam with silty clay loam lenses; brown (10YR 5/3) bands around root channels; few medium prominent red (2.5YR 4/8) mottles; common coarse prominent dark yellowish brown (10YR 3/4) mottles in laminations; massive; very friable; thickens and becomes surface horizon at south end of trench; clear wavy boundary.

C3 119-153; yellowish brown (10YR 5/6) and light brownish gray (10YR 6/2) silt loam and silty clay loam laminations; massive; friable; common fine prominent red (2.5YR 4/8) mottles; yellowish red (5YR 5/8), dark reddish brown (5YR 3/4) and black (5YR 2/1) coatings on faces of fragments and root channels; gradual wavey boundary.

2Cg1 153-173; bluish gray (5B 5/1) silty clay/clay; common fine distinct olive (5Y 5/4) mottles; massive; friable; very plastic; bottom of profile.

Interpretation:

This area has undergone extensive modification by human activities. The south end of the area has been modified by levee construction and the north end by the dredging of a large drainage channel and flood control structure. The buried soil (Ab) is the former soil surface prior to dredging. The clays and heavy silt horizons at depth are most likely the result of backswamp conditions related to bottomland forest in the area prior to cultivation. This area is also seasonally flooded.

Backhoe Trench 7 (Figure 25)

This trench was cut parallel to the South Fork of the Forked Deer River about 50 m east of the river and 70 m south of 40CT10. The area is somewhat poorly to poorly drained with 0-2% slope. Erosion at the site is slight but seasonal flooding and overbank deposition is common. Standing water occurred in the trench at 2.4 m and considerable gleying is evident in the profile. A small local drainageway occurs about 60 m to the north. The parent material for the soils in this area are loess-derived alluvium (water deposited silts) overlying possible lacustrine silts. The soil developed at this site is the Waverly silt loam. The soil profile described below was taken from the east wall at the south end of the trench. Munsell notations are for moist broken samples and depths are in centimeters.

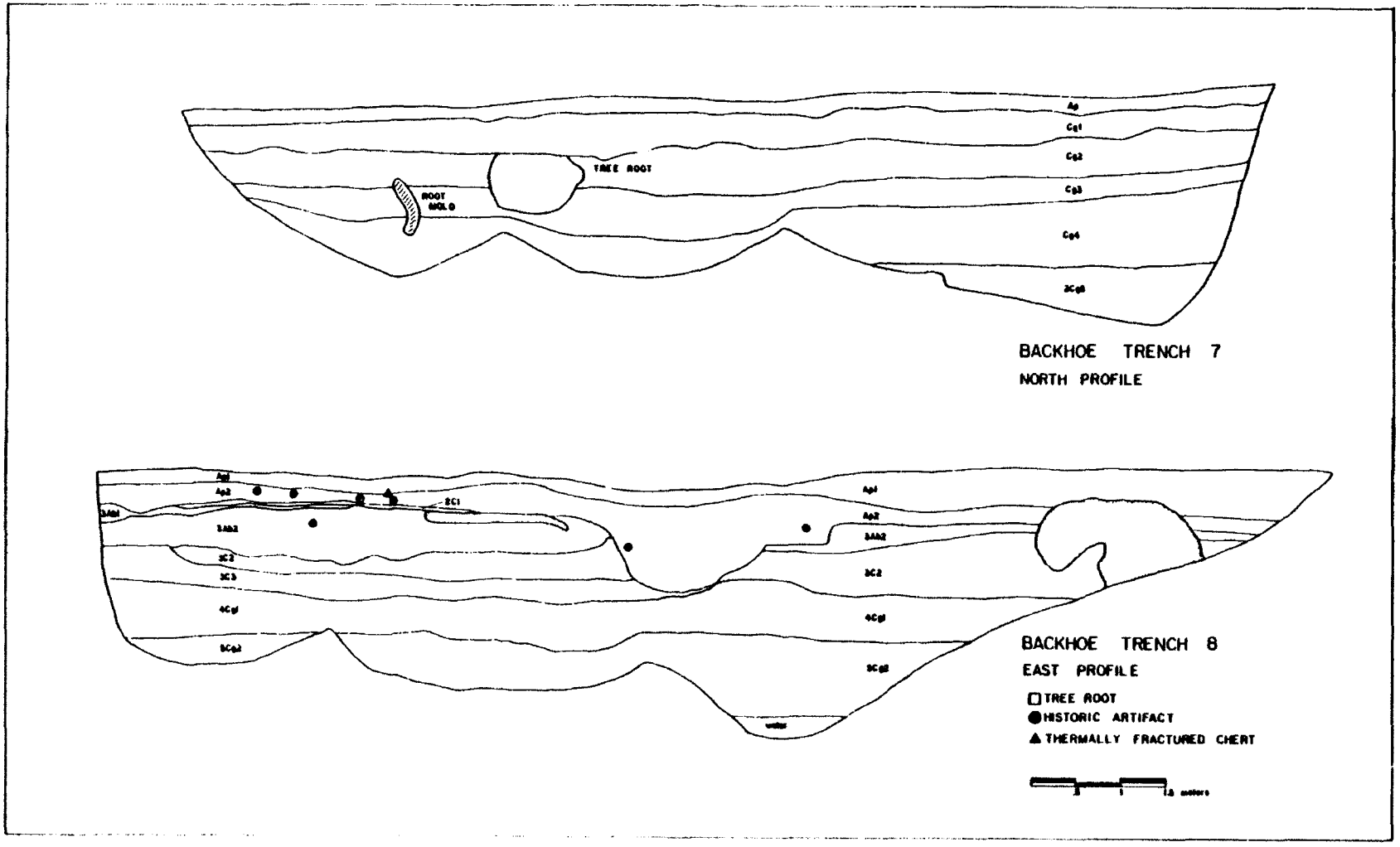

Figure 25. Backhoe trenches 7 and 8, profiles.

Ap 0-20 cm; pale brown (10YR 6/3) silty clay loam; common fine distinct strong brown (7.5YR 5/6) and common fine prominent red (2.5YR 4/8) mottles; yellowish brown (10YR 5/4) coatings along root channels; light gray (10YR 7/2) silt inclusions; weak and moderate fine and medium granular structure; friable and firm; clear wavy boundary.

Cg1 20-56; light gray (10YR 7/2) silt loam; many medium distinct and prominent yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) mottles; dark brown (7.5YR 4/2) organic coatings; massive; very friable; many krotovina from crayfish; few fine charcoal flakes; clear wavy boundary, occasionally abrupt.

Cg2 56-94; gray (10YR 6/1) silt loam/silty clay loam; common medium prominent yellowish red (5YR 5/8) and common medium distinct pale yellow (2.5Y 7/4) mottles; light gray and white (10YR 7/1, 8/1) silt inclusions; massive; very friable; many fine black manganese oxide streaks; many roots in top part of horizon; slight darkening at top of horizon; clear smooth boundary.

Cg3 94-122; grayish brown (2.5Y 5/2) silty clay loam; common fine distinct yellowish brown (10YR 5/6, 5/8) and few fine distinct strong brown (7.5YR 5/8) mottles; thin discontinuous brown (7.5YR 5/2) coatings along fracture planes; massive; friable; few to common concretions (Fe) 1-8 mm in diameter in upper 10 cm of horizon; clear smooth boundary.

Cg4 122-185; olive gray (5Y 6/2) silt loam; common fine and medium distinct strong brown and dark brown (7.5YR 5/8, 4/2) mottles oriented somewhat vertically; few silt inclusions in old root channels; massive; friable; clear irregular boundary.

2Cg5 185-267; greenish gray (5G 5/1) loam; light gray (5Y 6/2) silt loam areas intertongued with main colors; few fine and medium prominent yellowish brown (10YR 5/8) and red (2.5YR 4/8) and common medium and coarse prominent yellowish brown (10YR 5/8) mottles; thin discontinuous dark yellowish brown (10YR 3/4) coatings on fracture planes; variable fine sand; silt-clay ratio varies throughout horizon; massive; friable; base of profile.

Interpretation:

This trench exhibits a basal gleyed silt loam/loam unit similar to that found in many of the other trenches as well as along much of the river bank. This site is currently receiving overbank sediments which are being incorporated within the plow zone mainly through the churning activities of crayfish and other soil fauna. The trench is located adjacent to a cultivated field but the immediate trench area is not being cultivated. The 2Cg5 horizon is believed to be developed within a different parent material than the overlying horizons. Specifically, the basal parent material is believed to be lacustrine silts associated with post-glacial

meltwater which created slackwater lakes in the South Fork of the Forked Deer River and are associated with the lowermost terraces as described by Saucier (n.d.). The higher sand content in the 2Cg5 may represent a transitional period from lake to fluvial conditions. The uppermost horizons are developed in alluvium derived from reworked loess. The root mass and darkening at the top of the Cg2 horizon may represent a former soil surface associated with a forested environment. The higher clay content is suggestive of a lower-energy environment similar to the bottomland forest present in this area prior to clearing for cultivation. The Cg1 horizon is developed in sediments higher in silts and may represent the advent of cultivation and clearing in the drainage. Excessive erosion in the basin provided the silts which were later deposited on the lower floodplain areas prior to their being cleared in later years. If the top of the Cg2 represents the former soil surface, approximately one meter of deposition has occurred since historic settlement in this basin. The probability of finding stratigraphically-intact surface artifacts at this vicinity is low because of the extensive deposition. Areas in the immediate vicinity of Backhoe Trench 7, on higher ground, present higher probabilities of finding artifacts on the surface.

Backhoe Trench 8 (Figure 25)

This trench was cut about 60 m north of Backhoe Trench 7 and runs parallel to the river. It is located 20 m southwest of 40CT10 and 10 m north of a seasonally-active drainage channel. The field adjacent is currently cultivated. The area is somewhat poorly drained on a 2-5% slope and some erosion is occurring in the area. The water table was encountered at 2.5 meters depth in the trench. The soils have developed within alluvial silts derived from loess overlying possible lacustrine silts. The profile described was located at the north end of the trench on the east wall. The soil developed here is the Waverly silt loam although within 10 m the Calloway silt loam is found. Munsell notations are for moist broken faces and depths are in centimeters.

Ap 0-20 cm; yellowish brown (10YR 5/4) silt loam; few fine distinct strong brown (7.5YR 5/8) mottles; dark yellowish brown (10YR 4/4) manganese oxide stains; moderate fine and very fine granular and moderate very fine subangular blocky structure; very friable at top of horizon becoming friable at base of horizon where structure becomes more subangular blocky; clear smooth boundary.

Ap2 20-45; dark yellowish brown (10YR 4/4) silt loam; common medium and coarse distinct grayish brown (10YR 5/2) and strong brown (7.5YR 5/6) mottles; light yellowish brown (10YR 6/4) slightly laminated silts; massive; friable; contorted silts and clays; many thin irregular linear inclusions from worms; occasional thin linear banding along which oxidation has occurred; roots common; historic artifacts present; clear and abrupt wavy boundary.

2C2 46-53; very pale brown (10YR 7/4, 8/4) sand; common fine distinct strong brown (7.5YR 5/8) mottles in horizontal layers; dark reddish brown (5YR 2/2) organic coatings; single grain; loose; subrounded to subangular fine and medium sand; irregular

in thickness; discontinuous laterally; abrupt wavy and irregular boundary.

3Ab1 53-56; yellowish brown (10YR 5/4) silty clay loam; few medium prominent yellowish red (5YR 5/8) concretions; dark reddish brown (5YR 3/2) organic coatings; weak and moderate fine subangular blocky structure; friable and firm; sticky; common roots; clear wavy boundary.

3Ab2 56-94; brown (10YR 5/3) silt loam with silty clay loam inclusions; common fine and medium distinct brownish yellow (10YR 6/8) strong brown (7.5YR 5/8) and yellowish red (5YR 5/8) mottles; few fine black concretions (Mn); weak and moderate fine and medium subangular blocky structure; friable; many silty and sandy krotovina; many roots running parallel to lower boundary; clear wavy and irregular boundary;

3C2 94-112; light brownish gray (10YR 6/2) clay loam; few medium prominent dark reddish brown (2.5YR 2/4) and common fine distinct yellowish brown (10YR 5/6) mottles; red and dusky red (10R 4/8, 3/3) organic coatings on faces of fracture planes; massive; friable; clear smooth boundary.

4Cg1 150-203; olive (5Y 5/2) clay loam; few fine faint and distinct olive yellow (2.5Y 6/6) and reddish yellow (7.5YR 6/8) mottles; few fine black concretions (Mn); massive; firm; increasing sand in lower part of horizon; clear wavy and irregular boundary.

5Cg2 203-241; gray (5Y 5/1) clay loam/silty clay loam; few fine faint pale olive (5Y 6/4) and few fine prominent strong brown (7.5YR 5/8) mottles; many coarse prominent yellowish red (5YR 5/8) concretions near base of horizon; massive; firm; base of profile.

Interpretation:

This trench is located near 40CT10 and exhibits the stratigraphy of a small stream or drainage channel. The profile varies somewhat along the trench due to the geomorphic alterations created by the drainage channel. Several minor lenses of sand and silts are either laterally discontinuous or merge toward the south end of the trench. The upper meter of the sediment displays historic artifacts and is quite disturbed but the lower sediments appear to be intact and are similar to the basal sediments found in Backhoe Trench 7. The lower horizons are more compact and firm, and display a considerable variety of oxidation colors. The 4Cg1 and 5Cg2 horizons are believed to be developed in former lake sediments. Horizons 3C2 and 3C3 display increasing amounts of fine sands and may represent the influence of increasing fluvial activity. Soil horizons 3Ab1 and 3Ab2 represent the soil surface of the bottomland swamp which covered this area prior to clearing for cultivation. The sediments above the buried A horizon represent a combination of overbank sedimentation and fill material most

likely deposited by human activity. Some of the artifacts near the top of the profile may have been initially moved downslope by slopewash processes and then incorporated within the plow layer. This trench is cut close to a terrace remnant and some of the artifacts may be washing downslope toward the location of Backhoe Trench 8.

River Survey

In addition to backhoe trenches, the 4.6 mile long Fowlkes Item, Parcel 2 and the 6.2 mile long Halls Item were surveyed by motorized jonboat. The nearly 18 km (10.8 mi) of dredge channel occasionally intersects the original channel but the majority of its length is cut through former backswamp positions. In a sense, the dredge channel constitutes a 36 km long backhoe trench (two banks each 18 km in length). The width of the channel allows each side to be considered as a separate sample.

Along much of the channel, where the banks are slumping and covered by tall grass, the stratigraphy was difficult to interpret due to the vertical displacement of sediments. In other areas, long exposures were available for examination. In these areas, one stop to examine the stratigraphy was sufficient for the length of the exposure because any significant variation in the stratigraphy could be observed from the boat due to the excellent line-of-sight. Stops were made every 0.5 km or whenever significant changes occurred in the stratigraphy. Each stop was interpreted but only those exhibiting significant variations were described in detail. From these stops, a chronology of the stratigraphy was developed and correlated with the sediments exposed in the backhoe trenches. Easily identified units were used to laterally correlate the sediments during the river survey. The lowermost unit exposed in both the trenches and along the river is the gleyed high silt/clay unit believed to be associated with the lacustrine conditions produced by post-glacial meltwater. Other stratigraphic markers are the abundant log exposures and their associated buried soils, and the thick layer of dredge material near the top of the profile. In some areas an additional layer of undisturbed laminated silts overlies the dredge material suggesting that significant overbank sedimentation has occurred in this area since the dredging.

The following descriptions are representative of the stratigraphic units exposed along the river banks. Considerable similarity exists along the river; the major differences seem to be related to the different depositional patterns at the upper and lower reaches of the study area.

River Survey Stop 1

This stop is approximately 400 m downstream from the old U.S. 51 bridge. The exposure is 5 meters high and is characterized by the lowermost unit creating a platform near the waterline. The platform is exhibited by this unit at each site and provides an excellent line-of-sight marker. Munsell notations are for broken moist samples unless noted and depths are in centimeters. Soil nomemclature and horizon designations are used.

C 0-50 cm; very pale brown (10YR 7/3) silt loam; few fine faint strong brown (7.5YR 5/6) mottles; laminated; some discontinuous 3-5 mm thick white silt layers; friable; massive; abrupt smooth boundary.

2C 50-100; strong brown (7.5YR 5/6) medium sand upper part of horizon and very pale brown (10YR 7/3) silt loam lower part of horizon; single grain upper and massive lower; dredge material; variable colors for mottles and inclusions throughout horizon; compact and hard in lower part of horizon; abrupt smooth boundary.

3Cg1 100-270; gray (10YR 6/1) silt loam/loam; few fine faint brown (10YR 5/2) mottles upper part of horizon becoming many medium and coarse prominent yellowish red (5YR 5/8) in lower part of horizon; massive, compact, friable and hard; burned logs at lower contact in more oxidized part of horizon; abrupt smooth boundary.

4Cg2 270-500; gray (10YR 5/1) silty clay loam/clay loam; massive; friable; slightly sticky; plastic; lower part of horizon forms platform at waterline; bottom of exposure at river.

Interpretation:

The uppermost horizon represents sediment that has been deposited during the post-dredge period. The 2C horizon is developed within the dredge spoil and represents silts and sands removed from the channel. This horizon is variable in consistence and color and has common silt and sand inclusions. The 3Cg1 horizon represents the pre-dredge soil surface. This surface does not exhibit any soil profile development but in the lower part of the horizon, increased mottling and the presence of large burned logs suggests that this surface was once the site of a backswamp forest that was either cleared and burned prior to cultivation or was destroyed by wildfire and subsequently buried by sediment. The upper part of the horizon may represent sediment eroded from cultivated fields and may be historical. The 4Cg2 horizon is developed within silts that may have been deposited in a lacustrine environment. The scope of this project did not permit the additional fieldwork necessary to fully investigate the nature of these sediments.

River Survey Stop 2

This stop is approximately 400 m upstream of the new U.S. 51 bridge on the right bank. This site is similar to River Survey Stop 1 in both number of stratigraphic units as well as the presence of buried logs. Munsell notations are for broken moist samples and depths are in centimeters. Soil nomenclature and horizon designations are used.

C 0-50 cm; very pale brown (10YR 7/3) silt loam; thin discontinuous laminations; friable; massive; abrupt smooth boundary.

2C 50-110; strong brown (7.5YR 6/6) loam; mixture of textures with higher sand content in upper part of horizon; friable; compact; vesicular in upper part; dredge material; abrupt smooth boundary.

3Cg1 110-210; gray (10YR 6/1) loam; many medium distinct strong brown (7.5YR 6/6) mottles in upper part of horizon; few broken calcium carbonate nodules; burned logs at base of horizon overlying a slightly darker (10YR 5/3) horizon that forms a small shelf on the exposure; friable; massive; abrupt smooth boundary.

4Cg2 210-600; gray (10YR y/1) silt loam; thin discontinuous black (10YR 2/1) and brownish yellow coatings on fracture faces; common medium prominent dark yellowish brown (10YR 3/4) mottles; friable; massive; similar to lower horizon at River Survey Stop 1; bottom of exposure.

Interpretation:

This stop is similar to River Survey Stop 1. The buried logs are in the same position and are easily found along the same contact in other parts of the river.

River Survey Stop 3

Located approximately 400 m upstream of 40DY56 on the east side of the channel, this location has at least 2 m of dredge and overbank sediments overlying the former soil. The soil is somewhat poorly drained with 0-2% slopes. Munsell notations are for dry broken samples and depths are in centimeters.

C1 0-30 cm; light gray (10YR 7/2) silt loam; white (10YR 8/2) thin laminations evident; reddish yellow (5YR 6/8) mottles along laminations; massive; firm; abrupt smooth boundary.

C2 30-60; very pale brown (10YR 7/4) silt loam; many medium distinct strong brown (7.5YR 5/8) mottles; few thin discontinuous reddish brown (5YR 4/4) coatings along channels and fracture planes; massive; firm and compact; dredge material; clear smooth boundary.

2C3 60-130; very pale brown (10YR 7/4) sand; many fine distinct reddish yellow (7.5YR 6/8) mottles; single grain; occasional massive areas; loose in sand to hard in massive areas; dredge material; gradual smooth boundary.

2C4 130-210; gray (5Y 6/1) silt loam; common fine and medium prominent yellowish red (5YR 5/8) mottles along roots and fractures; massive with occasional single grain where sand inclusions occur; contorted laminations in lower 8 cm of horizon; dredge material; abrupt smooth boundary.

3Ab1 210-220; reddish gray (5YR 5/2) silty clay loam; common medium faint and distinct yellowish red (5YR 5/8) mottles; white (10YR 8/1) silt in root channels; weak and moderate fine and medium subangular blocky structure; friable; clear smooth boundary.

3Ab2 220-237; light brownish gray (10YR 6/1) silt loam/silty clay loam; common fine distinct yellowish red (5YR 5/8) mottles; white (10YR 8/1) silt in root channels; weak fine subangular structure; friable; clear smooth boundary.

3C4 237-437; light brownish gray (10YR 6/2) silt loam/silty clay loam; common fine distinct yellowish red (5YR 4/8) mottles along root channels; massive, friable; abrupt smooth boundary.

4C5 437-467; white (10YR 8/1) and light gray (2.5Y 7/2) sand; many fine distinct yellowish red (5YR 5/8) and reddish yellow (7.5YR 7/8) mottles; single grain; loose; bottom of profile.

Interpretation:

This area has been affected by dredging. There is a reversal in sediment around the buried A horizon. The 2C4 is similar to the 3C4 horizon and the 4C5 horizon is similar to the 2C3 horizon. This can be interpreted as the 3C4 and 4C5 horizons being dredged and deposited sequentially upon the former soil surface (3Ab1 and 3Ab2). This site yielded no cultural materials.

River Survey Stop 4

This stop is about 1.3 km upstream of the old Highway 51 bridge on the right bank. The area was described from a point on the left bank immediately across the river where the same stratigraphy is exposed with less vegetation cover and slumpage. Munsell notations are for dry broken samples and depths are in centimeters. Soil nomenclature and horizons are used.

C1 0-40 cm; brownish yellow (10YR 6/6) silt loam; very pale brown (10YR 7/3) in areas with sand inclusions; many fine distinct strong brown (7.5YR 5/8) mottles along lamination contacts; weak medium platy structure in places; friable; abrupt smooth boundary.

C2 40-142; light gray (10YR 7/2) silt loam; common fine distinct dusky red (2.5YR 3/2) mottles; fine black concretions of manganese; many coarse distinct strong brown (7.5YR 5/8) mottles; massive; friable; few small calcium carbonate nodules; strongly effervescent; few pebbles 1-4 mm; dredge material; abrupt smooth boundary.

2Ab1 142-150; dark brown (7.5YR 4/2) silty clay; common fine and medium distinct yellowish red (5YR 4.6) mottles; thin discontinuous dusky red (2.5YR 3/2) organic coatings on faces

of peds; weak fine and medium angular blocky; occasionally massive; friable; rootlets and fecal pellets common; common silt inclusions; piece of charcoal removed from near base of horizon for radiocarbon dating; abrupt smooth boundary.

2Ab2 150-168; light brownish gray (10YR 6/2) silty clay; common medium prominent yellowish red (5YR 4/8) circular mottles; dark brown (7.5YR 4.2) coatings along earthworm channels; massive; friable; clear smooth boundary.

2C1 168-268; light brownish gray (10YR 6/2) silt loam; common fine and medium distinct reddish yellow (7.5YR 6/8) mottles; massive; friable; common fine and medium iron concretions; clear smooth boundary.

2C2 268-368; olive and pale olive (5Y 5/3, 6/3) silt loam; common fine and medium distinct yellowish red (5YR 4/6) mottles; common fine black concretions of manganese; massive; friable; slightly effervescent, bottom of exposure.

Interpretation:

This river survey stop yielded cultural material (40DY55) that was positioned on top of the buried soil (2Ab1). The high clay content of this buried soil suggests that it developed in a poorly drained low-energy environment similar to the backswamp areas found throughout the floodplain. The profile is developed in a transition zone between a small terrace remnant that is projecting westward toward the site and the surrounding bottomlands. The length of this exposure is such that a sequence of well drained and poorly drained areas can be delimited. The drainage pattern seems to vary in response to the former solid surface that was somewhat undulating. Several terrace remnants occur in this location and the better-drained areas are always associated with them. A distinct change in texture and color also occurs along these areas where the terraces have projected into the swamp. The buried soil is variable in thickness; it thickens in the interterrace slough areas and thins as the terrace remnants are approached. It exhibits a catena or topography-related drainage pattern. In areas adjacent to the site, buried logs are found at the contact between the terrace remnant and slough deposits. The logs appear to date at least to the bottomland swamp that dominated this area prior to clearing for cultivation. A 40-gram piece of charcoal was recovered from near the bottom of the buried soil (2Ab) for radiocarbon dating. The sample dated at 1980 $\pm$ 50 B.P. (BETA-10502). This suggests that the buried soil was a stable surface generally free of sedimentation for a considerable time. Since this site was located on the edge of a terrace, it was probably not subjected to the rapid and extensive sedimentation that affected much of the floodplain. The soil has been buried by one meter of dredge and an additional 40 cm of laminated overbank silts since the dredging.

River Survey Stop 5

This stop is located about 200 m upstream of River Survey Stop 4 and also exhibits prehistoric cultural material (40DY56). The buried soil

exposed at River Survey Stop 4 is also buried here except that it is a better drained soil that developed on a terrace remnant rather than in the transition zone between the terrace and the slough. Dredge material is present here and considerable disturbance has occurred as a result of the construction of a levee road. Munsell notations are for moist broken faces and depths are in centimeters. Soil nomenclature and horizon designations are used.

C 0-140 cm; dredge material of similar color, texture, and consistence as that exposed and described for River Survey Stop 4.

2Ab 140-142; brown (10YR 5/3) silty clay loam; common fine faint dark brown (10YR 3/3) mottles; moderate fine and medium subangular blocky structure; variable thickness; friable; cultural material present; clear smooth boundary.

2Eb 142-146; pale brown (10YR 6/2) silt loam; few fine faint yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; friable; some silt in vertical channels along roots; clear smooth boundary.

2Bwb 146-226; brown (10YR 5/3) silt loam; few fine faint dark brown (10YR 4/3) mottles; few black manganese stains; common charcoal flakes; thin discontinuous brown clay and silt coatings on faces of peds; moderate medium and coarse subangular blocky structure; friable; clear smooth boundary.

2E'b 226-239; pale brown (10YR 6/3) silt loam; massive; friable; silt inclusions; some thin silt coatings along root channels; clear smooth boundary with abrupt wavy boundary where underlying fragipan is more developed.

2Bxb 239-259; yellowish brown (10YR 5/4) silt loam; moderate coarse prismatic structure; massive in lower parts of the horizon; friable; common fine distinct strong brown (7.5YR 5/6) mottles; thin discontinuous brown clay coatings on faces of peds; vertical silt inclusions; somewhat brittle; possible fragipan; hexagonal fractures present; clear wavy boundary.

2Btb 259-299; brown (7.5YR 5/2) silty clay loam; massive; friable; thin continuous dark brown (7.5YR 3/2) clay coatings on faces of peds; clear smooth boundary.

2BC 299-340; dark gray and olive gray (5Y 4/1, 4/2) silt loam; common fine and medium prominent yellowish red (5YR 4/6) mottles; massive; friable; gradual smooth boundary.

2C 340-500; dark gray (N4/0) silt loam; common fine prominent strong brown (7.5YR 5/6) mottles; massive; friable; bottom of profile at river.

Interpretation:

This area is very similar to River Survey Stop 4 in stratigraphy. A fragipan or former fragipan horizon (2Bxb) is exposed within the buried soil at this site. The buried soil developed on a terrace remnant that in some areas on the floodplain is characterized by the presence of the Calloway silt loam, a soil exhibiting a well-developed fragipan. It is possible that this site was also the location of the Calloway until burial by dredging. Since burial, the soil has lost some of its structural expression although translocated silts and clays are still present allowing for the identification of the fragipan and argillic horizons. This site is characteristic of areas buried on the floodplain after the development of a well-expressed profile. The cultural materials are located upon and within the buried A horizon (2Ab).

River Survey Stop 6

This stop is approximately 2.5 km upstream of River Survey Stop 3. The exposure is along the right bank about 40 m south of the end of the levee road. Logs are exposed along two contacts and dredge material is present. Munsell notations are for moist broken samples and depths are in centimeters. Soil nomenclature and horizons are used.

Ap 0-10 cm; light yellowish brown (10YR 6/4) silt loam; friable; massive; common burnt wood at lower boundary; abrupt smooth boundary.

C1 10-58; brown (10YR 5/3) silt loam; laminated; massive; friable; some logs at lower boundary; abrupt smooth boundary.

2C2 58-137; brown (10YR 5/3) silt loam; silt inclusions; massive; some logs at lower boundary; brittle; abrupt smooth boundary.

3Ab 137-152; dark gray (10YR 4/1) silt loam; friable; massive; former soil surface; abrupt smooth boundary.

3C1 152-180; dark gray (10YR 4/1) silt loam; common fine prominent yellowish red (5YR 4/6) mottles; friable; massive; abrupt smooth boundary.

3Cg 180-361; gray (N 5/0) silty clay loam; sticky and plastic; massive; firm; forms shelf at river level; bottom of exposure.

Interpretation:

This stop is similar to previous stops in that it exhibits buried logs and buried soil surfaces. The dredge material is easily defined and there has been some overbank deposition since dredging. The site has been plowed and disturbed by the construction of a levee road.

Analysis

The field search model developed and applied during this project appears to be valid, however, given the limited scope of this project, more definitive field testing is needed to adequately assess the model's capabilities. The river survey was a valuable addition to the methodology because it provided the research team with extensive exposures that would not have been available by backhoe trenching. The general stratigraphy was not very complex but several variations occurred where terrace remnants and old river channels were truncated by the dredge channel.

Field evidence clearly indicates that extensive sedimentation has occurred on the floodplain in recent decades. Sedimentation has also decreased the channel capacity. In some areas where the channel banks have begun to collapse, extensive slumping has promoted channel widening. It is likely that sites 40DY55 and 40DY56 will be damaged during each high-water period because of their exposure along the channel banks. It is also likely that the cutting of the dredge channel bisected these sites. The cultural material and the charcoal sample dated at 1980 + 50 B.P. allows us to begin to understand the sedimentation pattern in this area. The rate of sedimentation near these two sites is probably not as large as in areas nearer the natural channel, and the location of these two sites on the edge of a terrace suggests that these areas are prime locations to search for cultural remains. Two other sites located within the project boundaries, 40CT10 and 40DY54, are also located on terrace remnants. While this does not prove that terrace remnants are the only prime locations for finding cultural materials, it does suggest that a variety of environmental factors either made them more desirable areas for occupation or that the prevailing geomorphic processes have favorably preserved them through less intensive erosion and/or sedimentation. In either case, terraces and their erosional remnants play an important role in explaining the spatial distribution of archaeological sites in the lower drainage of the South Fork of the Forked Deer River.

The lowermost stratigraphic units exposed in this area are silty clays and clays that are very gleyed and appear to represent a textural sequence of upward-coarsening. The increasing size of sediments may represent the waning stages of lakes that Saucier (n.d.) believes dominated this area in post-glacial time. As the lakes began to drain, coarser sediments were deposited throughout the area, eventually leading to a dominance by fluvial rather than lacustrine processes. This point is documented in the stratigraphic column by the presence of more oxidized loams and silt loams. The limited evidence from this project suggests that less than one meter of sediment was deposited in the areas studied between the lacustrine phase and the advent of European settlement in the area. This contrasts with the 0.5 meter deposited since the construction of the dredge channel. An additional meter of sediment appears to have been deposited during the period following European settlement but prior to the channel construction.

It is uncertain whether these depositional patterns and rates are representative of other sections of the South Fork of the Forked Deer River or for other rivers in the area. However, the evidence for rapid and, in some cases, extensive sedimentation is quite abundant. The sediments in

which the Falaya and Waverly silt loams have developed may be no older than 200 years while the loess in which the Calloway, Loring, and Grenada have developed may be in excess of 6000 years. The topographically higher positions of the terraces and their distance from the river prevented them from being totally inundated by sediment deposited by the South Fork of the Forked Deer River. Buried soil horizons exposed in Backhoe trenches 2, 3, and 4 are evidence of recent sedimentation because the soils have not yet lost their structural definition. These soils are buried equivalents of the Calloway and still exhibit fragipan characteristics. Backhoe trenches 2 and 3 illustrate the progressive burial of the Calloway soil as the terrace/floodplain transition zone is crossed. The buried fence post and wire found in Backhoe Trench 3 is also evidence for recent sedimentation. It is possible that the initial clearing of upland forests for cultivation lead to high sediment loads which were deposited on lower slope and floodplain positions. A partial stabilization may have occurred as the fluvial system adjusted itself but the cutting of the bottomland forest and the dredging of the channel appear to have overloaded the system to such an extent that readjustment is continuing in the basin. Several areas were located where undisturbed laminated silts have been deposited. Their thickness of 30-50 cm suggests that the probability of finding archaeological sites on the surface is quite low. Any attempt to locate archaeological sites in drainage basins such as the South Fork of the Forked Deer River needs to seriously consider the examination of buried deposits during the beginning phases of the project rather than as the result of evidence obtained from a surface search. The geomorphic surfaces operational during the time frame of study must be located and that is best accomplished through the examination of the sediments in backhoe trench profiles or river exposures.

IX ARCHITECTURAL SURVEY by Phil Thomason

Methods

On May 31, 1984 an architectural survey was conducted of four structures located within the boundaries of the Halls-Fowlkes project area in Lauderdale County, Tennessee. The object of the survey was to assess the architectural significance of four standing structures in the survey area and to determine their eligibility for the National Register of Historic Places.

The survey consisted of an on-site analysis of all standing structures located on the South Fork of the Forked Deer River near the confluence of Halls Creek. All architectural features were recorded and field measurements were taken of each structure. Extensive black and white 35 mm photographs of each site were taken as well as color slides. Oral interviews with the occupants of Building 1 were conducted to gather information about the history of the buildings in the area. All information gathered from the on-site survey was then analyzed to determine the significance of the structures.

Building 1

Building 1 is the only residential structure in the survey area and the only occupied building (Figures 26 and 27). A frame garage (Figure

Figure 26. Building 1, view of north facade.

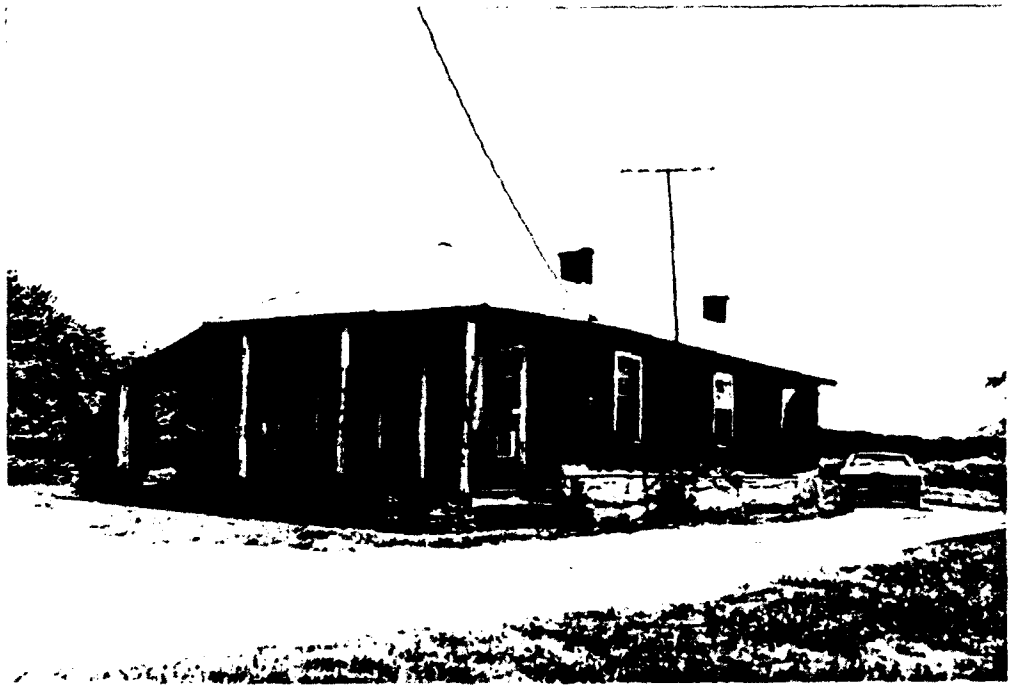

Figure 27. Building 1, view of north and west facade.

28) and a frame outbuilding (Figure 29) are located behind this residence. Building 1 is a one-story frame structure constructed in two stages in the 20th century. The house is rectangular in shape and measures 25' in width and 40' in length. The main block of the house was constructed ca. 1920 and a one-story shed roof addition was added ca. 1950. The house is of wood construction but a sheathing of tile shingles was added ca. 1965. It rests on a brick pier foundation with an open crawl space beneath the floor. The main block of the house displays a hipped roof covered with a recent application of asbestos shingles. The house was constructed on a northwest-southeast axis with the main facade facing northwest.

The original section of the structure has an open porch supported by three carved porch posts. Also on the porch is a tongue and groove ceiling. This section also features four-over-four sash windows and simple wooden window surrounds. Doors on the house are non-original wood solid core units added to the house ca. 1960. The shed addition has one-over-one horizontal sash windows and simple surrounds. At the southeast facade of the house is a small open porch.

The interior of the house consists of rooms arranged in a linear configuration connected by an open hall. Interior detailing is minimal with simple frame door and window surrounds. The house has two interior chimneys connected to stoves and heating units. All interior walls, ceilings and floors are of frame construction. At the rear of the house are two small frame outbuildings which were constructed ca. 1940. Both structures feature vertical board siding and metal standing seam roofs.

This house appears to date no earlier than ca. 1920 and is similar to tenant house types in this area of the state. The hipped roof and window design is typical of structures constructed between 1915 and 1930 in Tennessee. No significant interior or exterior details are present on the structure and it is a common house type in this area. The house has had several owners and no information as to the builder or exact date was readily available. Because of the structure's lack of architectural significance it does not meet the criteria of the National Register.

Building 2

Building 2 (Figure 30) is a one-story story frame barn located approximately seventy-five yards to the southeast of Building 1. This structure rests on a concrete foundation and was constructed ca. 1940. The building is of frame construction with an exterior of horizontal board siding covered with asbestos paper. The building is rectangular in shape measuring 21'6" in width and 15'6" in length and has a gable roof of metal standing seam. The interior is composed of large rooms and stalls for livestock storage. On the south wall of the structure an open addition measuring 26' in length was added ca. 1960.

This building is of recent 20th century construction and does not display any significant architectural detailing. These factors suggest that the structure does not meet the criteria of the National Register.

Figure 28. Frame garage behind Building 1.

Figure 29. Frame outbuilding behind Building 1.

Building 3

Building 3 (Figure 31) is a one-story frame outbuilding located at the rear of a former house site. According to oral interviews a four room ca. 1925 frame Bungalow was located on this site until the early 1970s when it was moved to a new location. Building 3 and Building 4 (Figure 32) were constructed at approximately the same time and are associated with this house site.

Building 3 is rectangular in shape and measures 12' wide by 7' in length with an added open area extending back 17' on the south facade. It is composed of vertical boards with a metal standing seam roof in a shed roof design. The interior consists of one open room for storage purposes. The structure does not possess any significant detailing and is not eligible for the National Register.

Building 4

Building 4 (Figure 33) is a large two-story frame barn located approximately fifty yards south of Building 3. The building was constructed ca. 1925 and measures 25' in width and 27' in length. On the east facade is a one-story shed roof addition. The main block of the barn features vertical board construction and a metal standing seam gable roof. The addition has horizontal board construction and a metal standing seam shed roof. The interior has large open rooms and stalls for livestock storage although the building does not appear to be in use at present. No significant details are found on this structure and it does not meet the criteria of the National Register.

Summary

The four structures examined in the Halls-Fowlkes Project Area were all constructed between 1920 and 1940. Building 1 is the only occupied structure in the group and its architectural detailing is typical of many rural houses constructed during this period in Tennessee. The house has also suffered numerous alterations such as the shed addition and the application of asbestos siding over the frame exterior. Buildings 2, 3, and 4 are ca. 1920 to 1940 frame outbuildings with vertical or horizontal board sheathing. These buildings were originally used for livestock or grain storage and were not constructed with any unusual or significant detailing. These structures are typical of rural West Tennessee farm buildings.

Oral interviews with occupants of Building 1 did not suggest any historical significance associated with the structures. Both the existing residence and the house associated with Buildings 3 and 4 were constructed in the early 1920s. They appear to be part of the traditional farming pattern of the area and are not associated with any large agricultural complex. Because of the lack of architectural and historical significance these properties are not considered eligible for listing on the National Register of Historic Places.

Figure 30. Building 2, view of west facade.

Figure 31. Building 3, view of north facade.

Figure 32. Buildings 3 and 4, view towards south.

Figure 33. Building 4, view of north facade.

X. SUMMARY AND CONCLUSIONS

Cultural resource investigations were conducted along a 15.2 mile section of the South Fork of the Forked Deer River in the Halls-Fowlkes region of West Tennessee. The Memphis District, Corps of Engineers plans to rechannelize this river as part of its more encompassing West Tennessee Tributaries project. The cultural resource studies included archaeological, geomorphic and architectural investigations.

Archaeological investigations were conducted at five sites (40CT10, 40DY54, 40DY55, 40DY56 and 40DY57) located within the project right-of-way. A testing program was undertaken at three sites (40CT10, 40DY55 and 40DY56) that the Memphis District, Corps of Engineers plans to impact. None of the three tested sites were deemed eligible for inclusion to the National Register of Historic Places.

An architectural survey of four standing structures was conducted. Four buildings constructed during the twentieth century were photographed and the dimensions recorded. The structures included one residence and three outbuildings. None of these structures had sufficient criteria (i.e., historical or architectural significance) to merit nomination to the National Register of Historic Places.

A geomorphic study focusing on the age and nature of the soil deposits in the project area was conducted. The first phase of the geomorphic study included a field reconnaissance, soil probe work at selected locations, and a detailed examination of soil surveys and U.S.G.S. topographic maps. The preliminary investigations indicated that there was a high probability for the occurrence of buried archaeological sites in the project area. A model outlining the high and low probability areas was formed. The model was tested by a second phase of fieldwork. This fieldwork included deep testing and a riverbank survey.

Nine high probability areas for the occurrence of buried archaeological sites were identified by the project geomorphologist. All of the high probability areas were examined during the riverbank survey and four of the high probability areas were deep tested. Two buried archaeological sites were recorded during the riverbank survey. These two sites are located on the only two terrace remnants identified during the riverbank survey. These findings support the model formed prior to the deep testing and riverbank survey.

The deep testing program failed to locate any archaeological sites but was successful in providing data on the age and nature of soils in the project area. A high rate of sedimentation in floodplain areas is indicated during historic times. This is evidenced by a radiocarbon sample dating to post 1830 that was buried beneath 1.5 meters of deposition (Backhoe Trench 5) and a historic artifact that was buried beneath 1.5 meters of deposition (Backhoe Trench 3).

The research objectives that were outlined prior to project implementation included: 1) isolating variables for the location of prehistoric settlements and settlement types, 2) determining intra site variability,

3) raw material utilization studies, 4) artifact classification, 5) obtaining data relevant to cultural history and 6) obtaining information on historic sites. The research objectives were met with varying degrees of success.

The first research objective focused on obtaining data relating to variables affecting the location of prehistoric settlements and settlement types. Data recovered from the project area supports Smith's (1979b:1) long held assumption that prehistoric settlement patterns emphasize site location on terraces. Four of the five sites recorded in the project area are situated on terrace remnants. There is also a tendency for sites in the project area to occur on Calloway silt loams, a soil characterized by a dense, compact fragipan (Brown et al., 1965:12). The Waverly and Falaya silt loams, silts that are poorly drained and have a minimal A horizon development, were not selected for prehistoric occupation. The sample size and the representation of only one physiographic zone (i.e., bottomlands) in the survey area precluded an assessment of other factors (e.g., proximity to water, elevation, site slope and ecological factors) that may affect the location of prehistoric settlements.

The second research objective was concerned with obtaining data on intra site structure. Controlled surface collections were obtained from two sites, 40DY54 and 40CT10. A controlled surface collection of the total site area was obtained at 40DY54 and two controlled surface collections, a 10% and a 25% sample, were obtained at 40CT10. The patterned discard of activity related artifacts (i.e., food processing and preparation) was discerned at 40DY54 and a concentration of daub in the southeast corner of the site suggested the presence of an architectural feature. The distribution of the surface remains could not be articulated with the subsurface remains because the site was not excavated. Different artifact clusters were discerned from the two cscs conducted at 40CT10, a likely result of differences in sample size and collecting conditions. The second controlled surface collection conducted at 40CT10, a 25% sample, was successful in delimiting the historic occupation.

The third research objective was concerned with the utilization of raw materials. A sample of local chert (medium grained; colored cream, light gray, tan and red with brown cortex) was obtained from dredge deposits in the study area and used as a comparative type. A small sample of lithic artifacts was recovered from the two most intensively investigated sites, 40DY54 and 40CT10. One hundred seventy-eight lithics were recovered from 40DY54 and 291 lithics were recovered from 40CT10. Although sample size is small, similarities in the utilization of some raw material types is evident. The percentage of local chert utilized at each site, 67.4% and 74.2% is similar for both sites and the percentage of Fort Payne/Camden chert used for bifacial tool manufacture is similar (37.5% and 31.6%). Other raw materials used at these two sites include ferruginous sandstone/siltstone, quartz, quartzite and sandstone. Artifacts made of ferruginous sandstone/siltstone include lithic debitage, unifacial tools, hammerstones and choppers. This raw material may have been selected for hammerstones and choppers because of its density. Quartz and quartzite was utilized at 40DY54 but not at 40CT10. The presence of quartz and quartzite at 40DY54 may relate to differential use of raw materials through

time or differential access to raw materials. However, the sample size is too small to conclusively demonstrate that either factor is evident.

The fourth research objective focused on artifact classification. The type variety system advocated by Smith (1979a) for ceramics and projectile points/knives was not used because of the dearth of data from excavated contexts. All artifacts, with the exception of projectile points/knives, were classified into descriptive and/or functional categories. Projectile points/knives were classified according to types previously established for the region and neighboring areas. The late 19th to 20th century artifacts recovered from 40CT10 comfortably fit into Stone's (1974) classificatory scheme for historic artifacts. The data recovered from the project area may aid in future classificatory attempts by providing a comparative data base.

The fifth research objective was concerned with obtaining data on historic sites. Little work has been conducted on rural historic sites in the West Tennessee region. No historic sites, other than the late 19th to 20th century occupation at 40CT10, were recorded in the project area. The 1907 map of the area indicates that two saw mills were located in the vicinity of the study area. One of these mills was located outside of the project area and the other mill site was never located. There remains a dearth of data on 19th century farmsteads and industrial sites in the West Tennessee area.

The sixth research objective was concerned with obtaining cultural historical data. Insufficient data was obtained from the project area to evaluate the phase designations that Smith (1979a) has postulated for the Poverty Point and Early Woodland periods. Data recovered from the project area indicate that certain artifact types and cultural components are present in the region. The presence of Benton projectile points/knives, and spherical and biconical baked clay objects in the project area extends the known range of these artifact types (cf. Smith 1972:112; 1979:128). The radiocarbon date (30 B.C. $\pm$ 50) recovered from 40DY55 dates Woodland period remains (9 clay tempered and 1 clay/sand tempered sherd). The clay tempered ceramics would be classified as Tchefuncte ware (300 B.C. - 100 A.D.) by Smith (1979a:75). However, larger samples of ceramics and additional radiocarbon dates are needed to establish a valid ceramic sequence for the region.

Site densities for the project area can be calculated and compared to other West Tennessee tributary streams. Five prehistoric sites were found in the 6.59 km^2 survey area. The five sites were located in the 6.55 km^2 bottomland area. The prehistoric site density in the project area is .76 sites per km^2 for the bottomlands (i.e., floodplain and terrace remnants). This figure compares with a 2.75 site density per km^2 calculated for the lower Hatchie River bottomlands, a .22 site density per km^2 for the Wolf River floodplain and a .87 site density per km^2 for the Loosahatchie River floodplain (Jolley 1981:54). The available data suggest a site density of less than one site per km^2 for bottomland areas of major West Tennessee tributary streams.

This project represents the first cultural resource investigation that was conducted as part of the West Tennessee Tributaries project.

Additional cultural resource investigations at other West Tennessee tributary streams will be conducted by the Memphis District, Corps of Engineers in the future. Based upon the results of these investigations, recommendations for the conduct of future work can be made. The geomorphic and archaeological investigations suggest that there is a high degree of probability that there are buried archaeological sites throughout the West Tennessee region. Sixty percent (N = 3) of the archaeological sites recorded in the project areas were buried. Since this resource may be impacted by rechannelization activities, it is critical that effective methods be used to detect these sites. The two methods (deep testing and the riverbank survey) that were used to locate buried archaeological sites can be evaluated. The riverbank survey was the most effective of the two methods. Two archaeological sites were recorded during the riverbank survey and no archaeological sites were recorded during the deep testing. The riverbank survey enabled the examination of a larger area in a lesser period of time. Future cultural resource investigations should include a riverbank survey during the first phase of fieldwork. Future investigations should also include geomorphic investigations. Both of the archaeological sites recorded during the riverbank survey were included in high probability areas outlined by the project gemorphologist. The high probability areas were partially based upon the examination of soil survey maps. These maps should be used with caution because of the possible presence of buried soil horizons. Three of the buried sites located during the survey were mapped on the surface as Waverly silt loams but were actually other silt loam soils (e.g., Calloway silt loam).

Finally, recommendations relating to the future management of projects conducted by the Memphis District, Corps of Engineers are necessary. The three "phases" of this project were unnecessarily delayed by a variety of bureaucratic "processes". The prevailing atmosphere was one of "hurry up" then "wait". A more proficient and cost-effective approach is recommended in the future.

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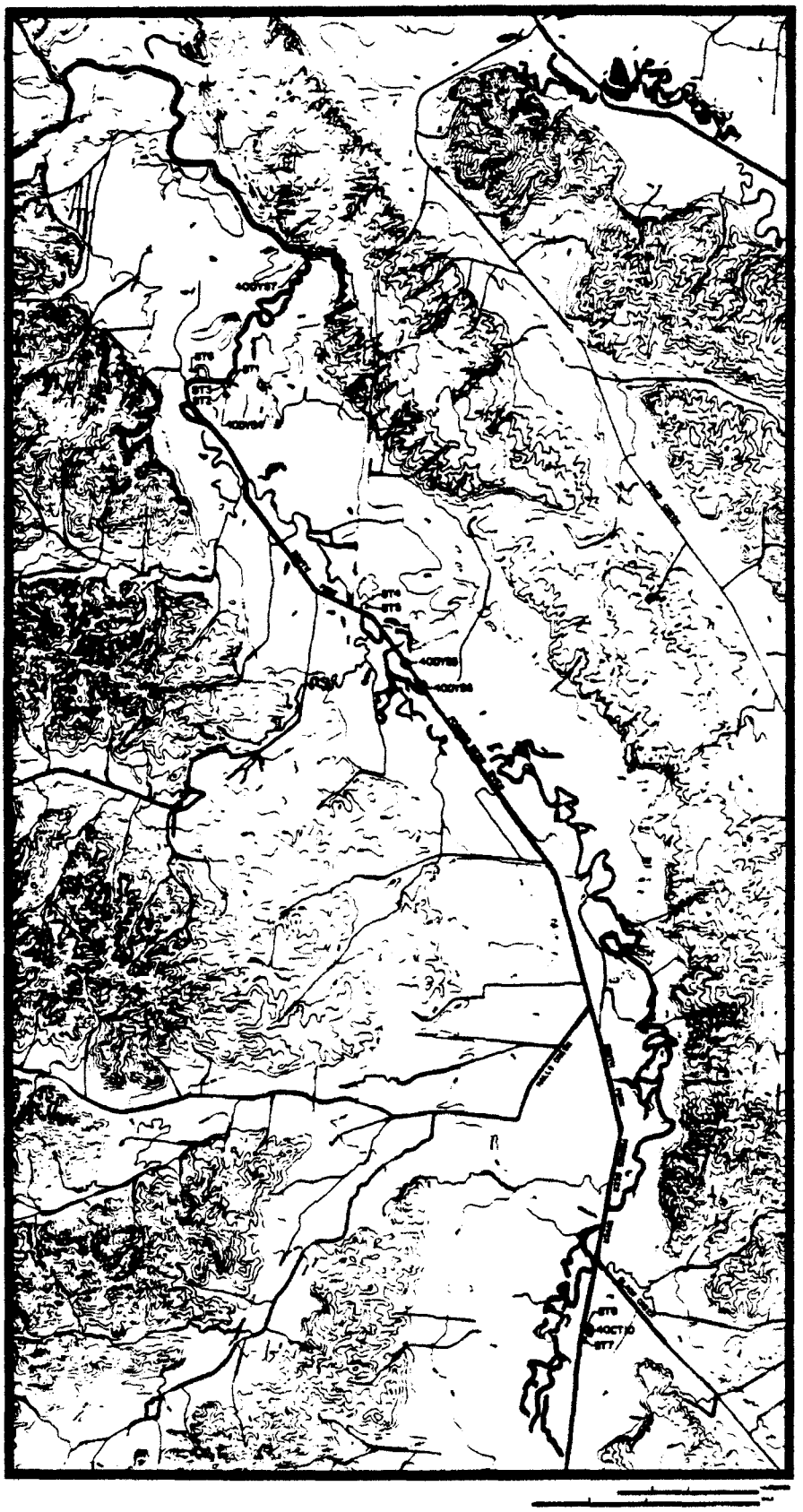

Location of backhoe trenches and archaeological sites.